

GREATER TORONTO AREA

3Rs ANALYSIS

NATURAL ENVIRONMENT

TECHNICAL APPENDIX

FINAL - MAY 1994

 **Ontario**

Ministry of Environment and Energy

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ISBN 0-7778-2032-3 (9v.set)
ISBN 0-7778-2041-2 (this v.)

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for
Fiscal Planning and Information Management Branch
Ministry of Environment and Energy

FINAL - MAY 1994



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1.0 INTRODUCTION

1.1 Background

In 1989, the government of Ontario announced its commitment to meeting a Provincial target of at least 50% reduction of waste going to landfills and incineration by the year 2000. This target, a waste diversion target to be achieved through waste reduction, reuse and recycling (the 3Rs), was confirmed by the present government in 1990.

To facilitate the achievement of the 50% target, the Province introduced the *Waste Management Act*, 1992. The Act broadened the government's powers to reduce waste sent to disposal through a variety of means. It also vests powers in the Interim Waste Authority (IWA), an agency created to ease the waste disposal crisis in the Greater Toronto Area (GTA). The IWA is complying with its mandate by conducting environmental assessments to locate three long-term landfill sites in the GTA.

The GTA Regional Municipalities of Peel and Durham are each defined for the IWA process as separate "primary service areas". Metro Toronto and the Regional Municipality of York have been defined as a separate combined primary service area. Each of the three defined primary service areas is proposed to receive one new landfill facility, identified through the IWA's environmental assessment process. The fifth GTA Regional Municipality, Halton, has already obtained approval for a landfill site and thus is not part of the present siting process.

1.2 Purpose of Study

This study has two purposes, each of which relates directly to a requirement created by the *Waste Management Act*.

The first requirement pertains to waste estimates. Section 14 of the *Waste Management Act* requires the Minister of Environment and Energy to provide a written estimate as to:

- a) *the amount of waste that would otherwise be expected to be generated in the primary service area (i.e. each of Peel, Durham and Metro/York) during a twenty-year period that will not be generated because of waste reduction efforts; and*

b) *the amount of waste that will be generated in the primary service area during a twenty-year period that will not need to be disposed of in the site because of the reuse or recycling of materials that are or could become waste.*

These waste estimates were provided to the IWA by Minister's letter dated May 15, 1992. A copy of this letter may be found in Appendix A to the EA Input Document. The GTA 3Rs Analysis study provides additional analysis of 3Rs activities, in support of the waste diversion estimates previously provided.

The second requirement pertains to analysing the 3Rs as "alternatives to" landfill waste disposal sites. Section 15 of the *Waste Management Act* requires that the IWA environmental assessments contain a description of, and statement of rationale for the 3Rs, as well as evaluate matters relating to the 3Rs as an alternative to the landfill waste disposal sites. By administrative agreement, the MOEE committed to provide such a rationale and evaluation to the IWA for use in its environmental assessments. The GTA 3Rs Analysis study fulfils this requirement.

A number of parameters guided the completion of the GTA 3Rs Analysis. The study parameters are as follows:

- The study area for the GTA 3Rs Analysis is the area encompassing Metro Toronto and the Regional Municipalities of Durham, York, Peel and Halton. Metro Toronto/York Region, Durham Region and Peel Region are defined in the *Waste Management Act* as the "primary service areas" for the purposes of establishing landfill sites. The Region of Halton has been included as part of the 3Rs Analysis study area as it is part of the GTA. It is not, however, one of the "primary service areas". Thus, alternative systems have not been developed and evaluated for Halton Region.
- The MOEE is not the proponent or co-proponent of any 3Rs systems discussed in this study. The study provides additional analysis of 3Rs activities and supplemental data on waste diversion estimates for use by the IWA.

- As stated in Section 15(2) of the *Waste Management Act*,

The environmental assessment is not required to contain any description of or statement of the rationale for, or any description or evaluation of any matter relating to,

 - a) an alternative of waste reduction or reuse or recycling if that alternative would involve incineration of waste or the transportation of waste from the primary service area to any other area for disposal; or*
 - b) an alternative of some other single landfill waste disposal site if the capacity of the other site would appear to be inadequate in view of the estimate provided under Section 14.*
- The *Waste Management Act*, 1992 specifies that the IWA landfills are to operate for a minimum of 20 years.

1.3 Study Approach

The GTA 3Rs Analysis identifies and assesses alternative 3Rs systems, composed of combinations of 3Rs programs, technologies and practices, that could reasonably be implemented in the GTA. In this report, this range of reasonable approaches to 3Rs are termed 3Rs system alternatives. It also determines the potential for each 3Rs system to divert waste over the twenty-year minimum life expectancy of the GTA landfill sites, and identifies the environmental net effects of each system.

For purposes of the present analysis, an array of conceptually different 3Rs systems have been identified for addressing residential wastes, as well as for institutional, commercial, and industrial (IC&I) wastes. For each system, estimates of the amount of waste the system could potentially divert from disposal have been determined. An assessment, done on a non-site-specific, generic level and documented in this report, identifies the net effects to the environment of each potential 3Rs system, in keeping with the *Environmental Assessment Act*.

accordance with its legislative mandate. The alternatives presented in this report are not in any way structured as detailed implementation plans for the Province, the Regions or the private sector.

A draft of the GTA 3Rs Analysis documentation was prepared in November 1993. The draft documents were circulated for agency and public review. Comments received were addressed and incorporated into this version of the documents (May 1994), if appropriate.

1.4 Purpose of the Natural Environment Assessment and Study Objectives

This technical appendix documents the natural environment input into the GTA 3Rs Analysis. Natural environment effects are defined as the potential for loss/removal or disruption to any terrestrial or aquatic features and emissions to the atmosphere.

The primary purpose of this natural environment assessment is to identify and assess the significance of effects to the natural environment which may occur as a result of the implementation of a 3Rs system within each of the four Regional municipalities (Metro Toronto, Peel, York and Durham). The results of this assessment are to serve as input into the overall 3Rs systems evaluation.

The study objectives of the natural environment assessment are as follows:

- Identification of existing natural environment conditions within each of the four Regional municipalities.
- Prediction of natural environment effects as a result of the implementation of any of the alternative 3Rs systems within each of the four Regional municipalities.
- Analysis of the potential natural environment effects including the development of mitigation measures for the purposes of identifying net effects.
- Ranking the systems of the four Regional municipalities from the perspective of the natural environment.

1.5 Outline of Report

Chapter 2 presents the study approach followed in the natural environment assessment.

Chapter 3 provides a general description of the existing natural environment conditions in the GTA and the Regions of Durham, Metro Toronto, York and Peel.

Chapter 4 discusses the results of the assessment and evaluation of the alternative 3Rs systems from a natural environment perspective.

Chapter 5 summarizes the findings of the assessment and evaluation of 3Rs systems with respect to the natural environment.

2.0 APPROACH

This section outlines the approach followed for identifying potential effects to the natural environment from 3Rs components and alternative 3Rs systems.

2.1 Overview

Generally, natural environment impact assessments attempt to identify the significance, magnitude and duration of the effects on the natural environment. This study achieves this by understanding the general characteristics of the natural environment in the GTA and the general technical principles of operation for the various 3Rs components.

The GTA 3Rs natural environment analysis assessed and comparatively ranked the alternative 3Rs systems based on the:

- Description of the existing natural environment of the GTA.
- The consideration of appropriate mitigation and enhancement measures.

The analysis addresses the types of natural environment effects in each Region for each alternative residential 3Rs system and in the GTA for the IC&I 3Rs systems. Natural environment effects will not all be of the same magnitude or occur in the same area. Consequently, the natural environment impact assessment considers the distribution of the effects in the study area as a result of the implementation of each of the 3Rs systems. Where possible, judgements are made on the significance and magnitude of the effects, and on whether or not the effects may be reduced or minimized through mitigation measures.

The first phase of the study involved the formulation of natural environment criteria and indicators to guide the study process. A list of 3Rs components which could potentially be included in a 3Rs system was then developed. Data was then collected on potential effects to the natural environment from these 3Rs components. Data describing the natural environment of the GTA and each of the Regions was also collected.

The second phase involved a two-step analysis of residential and IC&I 3Rs systems. The first step involved the identification of net effects for the alternative system components at

a generic GTA level. The generic analysis was based on a comprehensive set of 3Rs components for six residential and six IC&I systems:

Residential 3Rs Systems	IC&I 3Rs Systems
System 1 (Existing)	System 1 (Existing)
System 2 (Existing/Committed)	System 2 (Existing/Committed)
System 3 (Direct Cost)	System 3 (Extended 3Rs Regulations)
System 4 (Expanded Blue Box)	System 4 (Expanded 3Rs Regulations)
System 5 (Wet/Dry)	System 5 (Expanded 3Rs Regulations with Organics)
System 6 (Mixed Waste Processing)	System 6 (No Unprocessed Waste to Landfill)

As part of the generic analysis, general mitigation and enhancement measures were developed for the types of potential natural environment effects identified to avoid, eliminate or minimize the negative effects and, where feasible, to enhance the positive effects.

The second step involved the modification of the generic net effects analysis for each Region by considering the specific 3Rs components and natural environment conditions within each Region. This allowed the environmental net effects on the natural environment and the advantages/disadvantages of each system relative to the other systems to be determined.

The third phase of the study included the evaluation and ranking of residential 3Rs systems for each Region based on the system net effects. This ranking was done by individual criterion and then from an overall natural environment perspective. The GTA IC&I 3Rs systems were evaluated and ranked in a similar manner.

2.2 Impact Assessment Criteria

The natural environment includes land, water, plant and animal life, and air aspects of the environment. To assess the potential effects of the alternative 3Rs systems on the natural environment, it was necessary to develop a set of impact assessment criteria.

The following three criteria were developed:

- Potential for effects to terrestrial systems and resources;
- Potential for effects to aquatic systems including surface and ground water resources; and
- Potential for effects to the atmospheric environment.

The indicators, rationale and definition for these criteria are presented in Table 2.1.

The natural environment impact criteria formed the basis for the assessment of the alternative 3Rs systems. As specific components or facility locations were not known (or assumed to be not known where already existing) for any of the systems, locations of sites typical to the system components were assumed (e.g. waste management facilities are often located on industrial lands, landfill sites or at municipal works yards). The impact assessment criteria and indicators reflect this level of detail. The criteria and their indicators addressed the potential for the loss/removal and/or disruption of systems and resources.

The natural environment assessment criteria and indicators were developed in "draft" and circulated for agency review and comment. Review comments received on the criteria and their indicators were addressed and incorporated.

2.3 Data Sources and Method of Analysis

A variety of sources were used to compile information on potential effects to the natural environment due to alternative 3Rs systems. The analysis of the collected data relied on the identification of potential effects and the success of mitigative measures implemented by established and operating 3Rs components.

Three specific activities were used to assist in gathering data:

- An extensive literature review was undertaken to identify documented specific effects on the natural environment;

TABLE 2.1
NATURAL ENVIRONMENT CRITERIA GROUP
ASSESSMENT CRITERIA AND INDICATORS

Criteria	Indicator	Definition	Rationale
Potential for Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> · Potential for loss or removal of terrestrial systems and resources · Potential for disruption effects to terrestrial systems and resources 	This criterion addresses the potential for the loss/removal and disruption to terrestrial systems and resources. This includes terrestrial biological systems and forest, mineral and agriculture resources.	Addresses the goal of minimizing impacts on natural environment communities as required by the <i>Environmental Assessment Act</i> (EA Act).
Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> · Potential for loss or removal of aquatic systems including surface and ground water resources · Potential for disruption effects to aquatic systems including surface and ground water resources 	This criterion addresses potential for the loss/removal and disruption to aquatic systems and resources. This includes aquatic biological systems and surface water and ground water resources.	Addresses the goal of minimizing impacts on natural environment communities as required by the <i>Environmental Assessment Act</i> (EA Act)
Potential for Effects to the Atmospheric Environment	<ul style="list-style-type: none"> · Potential for atmospheric emissions 	This criterion addresses the potential for effects to the atmospheric environments. This involves effects due to emissions such as gases, odour and dust.	Addresses the goal of minimizing impacts on natural environment communities as required by the <i>Environmental Assessment Act</i> (EA Act)

- Telephone contacts were made with operators of 3Rs system components to obtain actual operating experience and knowledge of effects on the natural environment from 3Rs components; and
- Information collected by the Ministry of Environment and Energy (MOEE) as part of a survey of registered complaints or non-compliance with operating conditions of any 3Rs components was reviewed.

Information and input from other study team members, based on their professional experience, was also considered as part of the data collection and analysis.

In November 1993, the draft GTA 3Rs Analysis documents were circulated for agency and public review. It was expected that comments received with respect to the natural environment might require additional data collection and analysis to verify and/or confirm any identified potential effects. The only review comment received regarding the natural environment assessment suggested that effects on cultural heritage resources should also be considered. The effects to cultural heritage resources were addressed in the GTA 3Rs Analysis - Social Environment Technical Appendix. These effects were considered within the indicator "Potential Effects on Community Features and Businesses" under the "Potential Local Community Impacts" criterion.

The following describes in detail the three key data collection activities including a summary of the data collected.

2.3.1 Literature Review

An extensive literature review was undertaken to identify any documented evidence of effects to the natural environment due to the development and operation of 3Rs components/systems. The literature review was also intended to identify potential measures to mitigate any effects.

The literature review conducted included books, manuals, periodicals, newspaper articles, technical reports and other published and unpublished documents. The literature review focused mainly on experience with 3Rs components within North America and, to a lesser extent, Europe. A bibliography is included following Section 5.

The effects identified through the literature review focused mainly on effects to aquatic systems including surface and ground water resources and on effects to the atmospheric environment. Minimal reference was identified on any potential effects to terrestrial systems and resources from 3Rs components.

Potential effects to terrestrial systems were identified as being the loss or removal of an existing resource. This loss or removal would be the result of siting a large scale 3Rs facility (e.g. processing facility, compost facility) requiring a significant amount of land. However, the available information notes that generally this effect is easily mitigated by siting any such facility in the appropriate location. An appropriate location was identified as industrial zoned areas or an existing landfill site.

Effects to aquatic systems were not specifically categorized as resulting in the loss/removal or disruption of aquatic systems including water resources. The most frequently cited effects included the discharge of leachate from a centralized composting facility and its release to surface water and ground water. Mitigative measures are readily available to prevent surface water runoff from entering the site, collecting any on-site runoff and the installation of a low permeability pad or leachate collection system underneath the compost area to prevent contamination of ground water. The literature did not identify any instances where these measures had failed to mitigate the potential effects. The development of large scale materials processing or recovery facilities (MRFs) and central compost facilities was also identified as potentially disrupting local surface water drainage patterns. Typically, the development of these facilities requires that a storm water management plan be developed.

The illegal or indiscriminate dumping of wastes was identified in the Social Technical Appendix literature review as a potential consequence of a direct cost waste management system. Depending upon the quantity and types of wastes dumped illegally, this activity may result in effects to aquatic systems including water resources.

Literature on the potential effects to the atmospheric environment were identified for only a few 3Rs components. Emissions to the atmosphere were identified most commonly with central compost facilities. Based on the reviewed documentation, the air emissions of concern from municipal solid waste composting operations fall into two broad categories: bioaerosols and gaseous emissions. Bioaerosols include bacteria, fungi, viruses and microbial products. The primary pathway for the toxic components of these bioaerosols to become airborne is associated with dust and particulates generated during waste handling and processing before exposure to thermophilic conditions (temperatures of 40°C to

60°C). Based on the available data, there was no evidence that levels of bioaerosols have occurred above background levels (on-site and off-site) in operating compost facilities.

Volatile organic compounds (VOCs, e.g. benzene, toluene, acetone) and odorous compounds are gaseous emissions that are of concern to the atmospheric environment. Gaseous emissions are created in two ways at composting facilities. This includes the volatilization of specific compounds present in municipal solid waste and during aerobic and anaerobic decomposition in which compounds are broken down into lighter and more volatile compounds. During active composting, VOCs are quickly volatilized and emissions rapidly diminish during composting. Studies indicate that odour generation is often greatest during the first ten days of composting. Available data indicates that VOC emissions are well below acceptable limits. The available data generally indicates that facilities where food wastes or mixed wastes are composted have a higher likelihood to generate these types of emissions.

The production of synthetic VOCs are best prevented and minimized through the removal of VOC contributors prior to composting. This includes the source separation of materials such as solvents, paints, adhesives and aerosols. Source separation programs might include the collection of these household hazardous wastes. If a compost facility is enclosed, emission control systems are normally used to capture and treat the building air. The generation of odours at a compost facility is best avoided by maintaining aerobic compost conditions. Proper designs of the composting system, proper management of the composting process and odour control measures (e.g. chemical scrubbers and biofilters) are all methods to prevent and minimize odours.

Studies have also been completed with respect to air emissions at materials recovery facilities (MRFs) and Mixed Waste Processing facilities. Emissions associated with these facilities are typically observed inside the facility. Emissions include exhaust fumes from waste collection vehicles and mobile equipment, bioaerosols and gaseous emissions. The bioaerosols and gaseous emissions (VOCs) are directly related to the mixed waste facilities. This is due to the unsorted nature of the waste stream and the presence of large quantities of organic materials. Mitigation of air emissions within materials processing facilities is often by emission control systems to collect and treat the air.

Research on the generation of greenhouse gases (GHG) from various sources is well documented. GHG emissions include carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). One of the most significant sources of GHG emissions is automobiles (Environment Canada, 1992). Diesel powered trucks generate approximately one-quarter

of the total emissions from road motor vehicles. Most trucks used for waste collection and hauling use diesel fuel. Measures to reduce vehicle emissions include minimizing the number of vehicles and collection-kilometres required for a waste management system and regular maintenance of vehicles.

Greenhouse gas emissions are also produced as a result of various waste management practices. Landfills are estimated to be the major source of methane emissions in Canada accounting for almost 40% (Environment Canada, 1992). However, through waste diversion the amount of GHG emissions from landfill can be substantially reduced. Waste diversion programs such as paper, glass, ferrous, aluminum and plastics recycling all result in a net reduction of GHG emissions when considering the emissions associated with the product life cycle. This includes such things as raw materials displacement, process energy, transportation and disposal.

System components such as backyard composting and centralized composting have also been identified as sources of greenhouse gas emissions (Environment Canada, 1994). An unpublished Environment Canada report indicates that the GHG emissions associated with backyard composting are expected to be higher (approximately 20%) than those for centralized composting of residential organics. This is based on the assumption that backyard composting does not maintain fully aerobic conditions. A central compost facility was assumed to maintain aerobic conditions since it is frequently turned and aerated.

Following the review of available literature, it was identified that effects on the natural environment from 3Rs facilities were not substantively documented.

2.3.2 3Rs Component Operator Contacts/Interviews

In order to better estimate potential effects on the natural environment, a number of operators of various 3Rs components were contacted. It was felt that the first hand knowledge or experience of an operator may provide some insight into environmental effects not previously identified and on new or innovative mitigation measures.

A list of 3Rs components was identified at the outset as having some potential to result in effects on the natural environment. A number of operator contacts were identified, with the assistance of the technical study team, for each of the components. It was noted that variations of compost and processing facilities exist based on the type of waste being

received. It was anticipated, as a result of the literature review, that potential environmental effects from a compost facility may be more variable depending upon the waste type than at a processing facility. When contacting operators, it was a priority to identify a cross-section of operations, based on waste type, for interviews. This would include facilities managing residential wastes and also facilities managing wastes from the institutional, commercial and industrial (IC&I) sectors.

The 3Rs components for which operators were to be interviewed included:

- Compost
 - In-vessel
 - Windrow
- Processing
 - Mixed Waste
 - Materials Recovery
 - Residential Blue Box
 - IC&I Wastes
 - Wet/Dry
- Household Hazardous Wastes - Permanent Depot

A list of the 3Rs facility operators who were contacted including operator/contact name, location, date of interview and facility type are included in Schedule A.

A number of questions were prepared to guide each interview and to ensure consistency in the collection of information. Based on the literature review and discussions with the study team, many effects associated with 3Rs components were identified as being related to the social environment. Consequently, the prepared questions were developed, and interviews conducted with the social impact assessment study team members. The list of questions which were used as the basis for the interviews is also included in Schedule A.

The majority of effects identified by 3Rs facility operators related to aquatic systems including ground and surface water resources. The potential effects were not typically a result of the location of a facility. Most facilities (processing and compost) were purposely sited at existing landfill sites since it was viewed that these locations had already impacted the environment and that appropriate controls were in place to minimize effects to the natural environment (e.g. leachate collection, surface water management). Other locations chosen by operators for facilities that were considered compatible and appropriate land uses were industrial areas and municipal works yards. One respondent

who operates a windrow compost facility did express some concern with the close proximity of the facility to a floodplain.

Potential effects to ground and surface water resources were identified for compost facilities and household hazardous waste depots. No effects were identified for processing facilities as there were no discharges from any of these dry waste processing facilities. Most centralized compost facilities whether in-vessel or windrow have some type of mitigative controls in place to minimize effects. The discharge of leachate was identified as a potential effect from compost facilities. Many facilities collect the leachate and recirculate it as process water, resulting in a closed loop operation. Other operators indicated that collected leachate was either hauled directly to a sewage treatment plant or discharged to the sanitary sewer. Virtually all compost facilities contacted have some form of surface water management program in place. Compost sites are graded so that surface water drains away from the compost to collection ditches or a pond. Facilities are also surrounded by berms or ditches to prevent surface water runoff from entering the compost area. At some facilities the surface/storm water management system is also used to collect any leachate. In these circumstances the compost area is covered with a layer of low permeability asphalt or some other material to prevent leachate from migrating downwards. Leachate may then drain on the surface to the collection system. Collected surface water is monitored and treated, if required.

Similar to other 3Rs facilities, the permanent household hazardous waste depot included controls to prevent effects to ground and surface waters. The facility contacted was located at an existing landfill site. Design features are included in the facility to prevent discharge of wastes to the environment. This includes self contained areas for different types of HHW with separate sump drains. No drains are connected to a sewer system. Wastes collected in the sump are pumped out and managed accordingly. The area surrounding the depot is graded and sloped to its own sump drain to collect any spilled wastes. Most HHW depots which currently exist in the GTA are located at waste transfer stations.

No specific effects to terrestrial systems and resources were identified through the operator interviews. However, it was noted that some facilities had undergone site selection processes to identify the most suitable location for the facility. Typically a facility would be located at an existing landfill site, in an industrial area, or municipal works yard since these locations were already developed and would not result in further effects to the terrestrial environment.

With respect to effects to the atmospheric environment, the main effect identified was odours from compost facilities. These odours were always attributed to operational problems. Improving operating methods and installing emission controls (e.g. biofilters) resulted in improved conditions. Other effects mentioned included dust and from one facility, fog. The fog was the result of poor compost facility design and operation which resulted in a large amount of moisture loss from the compost. Potential effects to the atmosphere may also result from accidents or spills at a household hazardous waste depot. The facility contacted had an air exchange/filtering system in place and continual air quality monitoring to mitigate any potential effects to the atmospheric environment.

2.3.3 Complaint/Compliance Survey of 3Rs Facilities

The literature review and operator contacts typically identified potential effects to the natural environment from the point of view of the 3Rs facility proponent. To identify any potential effects, from an alternate point of view, it was proposed that a review of recorded complaints or compliance reports be undertaken. Complaints registered by the public with respect to the operation of an approved 3Rs component are kept on file by the regulating agency, the Ministry of Environment and Energy (MOEE). These records are typically kept by the Regional Offices and Investigations and Enforcement Branch (IEB). The non-compliance with approved operating conditions is also recorded by the IEB. A review of recorded information on complaints and IEB actions taken at 3Rs facilities within the Greater Toronto Area was subsequently undertaken by the MOEE. The information collected by the MOEE was then reviewed to identify if any complaints or cases of non-compliance were related to effects on the natural environment and the degree of severity of the effects. Mitigative measures taken, if any, were not identified as part of the MOEE's data gathering process.

The majority of complaints recorded were for odours from compost facilities. Odours were also attributed to a facility transferring and processing food wastes. The only other emission to the atmosphere noted was dust. The sources of the emissions were a transfer/materials processing facility and also the chipping of wood or brush for composting. Few complaints were observed with potential effects to aquatic systems and water resources. However, leachate was observed at a central compost facility and storm water runoff from another compost facility was identified as the cause of odours in a nearby storm sewer.

No complaints or reports of non-compliance were identified resulting in potential effects to terrestrial systems and resources.

2.3.4 Consultation

As part of the GTA 3Rs Analysis, a public and agency consultation program was conducted. As discussed in detail within the GTA 3Rs Analysis EA Input Document, key consultation activities which were undertaken included: documentation distribution, attendance at IWA information centres, meetings with municipal representatives, review of participants' reports and telephone contacts with stakeholders.

Based on these and other activities, data upgrades and revisions to the documentation were made. Appendix A of the EA Input Document summarizes comments received and responses to them.

2.4 Assumptions

The natural environment includes land, water, plant and animal life, and air aspects of the natural environment. Each of these environments is very diverse across the GTA. This diversity includes a wide variety of significant features and resources. The implementation of an alternative 3Rs system may potentially affect the natural environment within the GTA. However, for some components, the effect to the existing GTA environment will be dependent upon the specific location of the system components (i.e. facilities) and the existing environment in the vicinity of the components.

A number of assumptions were made to undertake the analysis of alternative 3Rs systems. The assumptions included general study assumptions and natural environment discipline specific assumptions. These assumptions are listed below.

General Study Assumptions

- The study period extends from 1996 to 2015.
- Markets will be available for the recycled materials and compost from source separated compostables.

- Residential waste diversion systems are developed and analyzed separately for each GTA Region. However, because there is no effective waste management boundary for IC&I waste and recyclables (IC&I waste management is not confined by municipal boundaries), IC&I waste diversion systems are developed for the GTA as a whole.
- Regulations identified in the IC&I systems are assumed to be enforced equally throughout the Province and for all systems.
- 3Rs components would be developed in a manner that fulfils the necessary MOEE approvals (e.g. Certificate of Approval).
- The 3Rs systems developed are considered reasonable, represent a range of plausible diversion approaches, and do not necessarily represent the highest possible diversion at all times.
- The mixing and matching of 3Rs components beyond what is done in this report is possible but not assessed due to the large number of possible permutations and combinations.
- The net effects analysis is based on the year 2000, the year in which all systems are assumed to be fully operational.
- The analysis is generic; specific sites/locations for new facilities for each of the systems were neither known nor considered.
- The potential effects of landfill were not considered in the systems net effects.
- The effects of a facility are attributed to the region which uses it.
- All systems were analyzed to the same level of detail.
- It is assumed that larger facilities will be sited to minimize effects (i.e. located in areas most compatible with the facility) through a systematic site selection process.

- Mitigation measures identified are readily available and would be implemented effectively.
- The diversion rate estimates were generated for the year 2000 (the year by which the systems were assumed to be fully operational) and for the 20 year cumulative study period. Increases in diversion rates after the year 2000 are attributed to source reduction.
- A combined diversion rate estimate was determined for Metro Toronto and the Region of York. Alternative systems, however, were evaluated separately for these two Regions.
- Only effects directly attributable to the 3Rs systems development and operation were considered.
- For all of the residential 3Rs systems, it is assumed that the system would be designed and managed such that there would not be any increase in the total number of collection vehicle trips in any residential area, or any increase in the net amount of time required to pick up materials.
- The export of waste, for the purposes of this study, was considered disposal.

Natural Environment Discipline Specific Assumptions

- No site-specific locations for 3Rs components are identified. However, when considering potential effects to the natural environment, typical locations for components are considered.
- Potential effects on the various aspects of the natural environment are recognized for a typical location. It is assumed that effects can be minimized through appropriate siting (e.g. a facility would not be sited in an environmentally sensitive area).
- Effects on specific natural environment systems or resources within the GTA are not identified.

- Only potential effects directly attributable to a 3Rs component or system were identified (e.g. a central compost facility was identified as having potential effects to terrestrial systems and aquatic systems due to siting the facility and from discharges of leachate or stormwater from the facility to ground or surface waters).
- The effects to the natural environment from the decreased reliance on waste disposal (due to 3Rs components) were not considered.
- Effects to the natural environment from the actual recycling process of a material (e.g. effects from effluents of a recycling process) or any other process other than the actual diversion of waste, were not considered.
- Mitigation measures identified to minimize the potential effects typically fall within two categories. These categories are the siting of any facility and the installation of facility design features to control or minimize any potential effects. It was assumed that mitigation was available in these categories.
- It was assumed that any 3Rs component which requires an MOEE Certificate of Approval (C of A) would be developed and operated in a manner which fulfils these approvals.
- Household hazardous waste (HHW) collection depots are located at a waste transfer station or landfill site, consistent with the locations of those HHW depots already operating in the GTA.
- Greenhouse gas (GHG) emissions from individual 3Rs components or for an entire 3Rs system were not considered. GHG emissions data was not available for each component. Also, to assess GHG emissions in the proper context, the reduction in GHG emissions from landfill must also be considered. For example, an increase in the quantity of organics composted results in a greater amount of GHG emissions. However, maximizing the diversion of organics from landfill decreases the amount of GHG emissions from landfill. As noted previously, the potential effects of landfill were not considered in this study.

- Illegal dumping of wastes is anticipated to occur to varying extents as a result of a direct cost system. Available literature sources indicate a "loss" of waste quantities within such a system once it is implemented and operating.
- Facility design features are readily available and proven measures to mitigate potential environmental effects. The specific type of feature is dependent upon the type of 3Rs facility (e.g. household hazardous waste, compost, materials recovery facility) and the potential effects identified.
- For the IC&I alternative 3Rs systems, it was assumed that there would be an increase in the existing total number of collection vehicle trips and/or the net amount of time required to pick up materials. This increase in collection vehicle requirements would be a direct result of a larger number of IC&I waste generators having to comply with the 3Rs Regulations, a larger range of materials being source separated and/or as a result of all wastes being processed prior to disposal.

3.0 EXISTING CONDITIONS

The Greater Toronto Area (GTA) consists of five regional municipalities including Durham, Metro Toronto, York, Peel and Halton. With the exception of York Region, these regions are bounded to the south by Lake Ontario. The natural environment characteristics and conditions are diverse across these Regions. The most striking contrast is between the rolling till plains of the upland and the ancient lake bottoms bordering Lake Ontario. The topographic contrast is accentuated by variations in climate and natural vegetation, and in the specialized agriculture on the sand or clay plains and the more generalized farming of the uplands (Chapman and Putnam, 1984).

Two distinct topographic features dominate the GTA, namely the Niagara Escarpment and the Oak Ridges Moraine. The escarpment separates the two levels of the Niagara Peninsula. It passes through the middle of Halton Region and the northern portion of Peel Region, in approximately a north-south direction. The Oak Ridges Moraine extends from the Niagara Escarpment eastwards across the top of Peel Region and through the centre of both York and Durham Regions and beyond. The Oak Ridges Moraine forms the height of land which divides the Lake Ontario drainage basin from that of Georgian Bay and the Trent River. Generally, the area south of the Oak Ridges Moraine to Lake Ontario is heavily urbanized across the GTA. Agricultural land uses tend to be predominant in the areas to the north.

The following presents a discussion of the existing natural environment conditions in the Regions of Durham, Metro Toronto, York and Peel. The descriptions are a general overview of the conditions in each Region for geology/ground water, surface water and biological aspects of the natural environment. These are natural environment features which would be affected by the 3Rs systems. Although the potential for effects to the atmospheric environment are examined in the 3Rs systems net effects analysis, the atmospheric environment is not described here. The information provided identifies existing natural environment conditions in the Regions to provide a basis for assessing the alternative 3Rs systems. These descriptions are used to facilitate the prediction of potential effects to the natural environment, when comparing and evaluating the alternative 3Rs systems. Much of the information presented in the descriptions is based on Chapman and Putnam (1984), Dillon and Gartner Lee (1987) and MacLaren (1990).

3.1 Durham

3.1.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Ground Water Overview

The geologic and ground water conditions within Durham Region can be quite variable, largely owing to the fact that the area has been glaciated several times in recent geologic history. There has been a great deal of study in the area, and therefore the geologic and ground water conditions are reasonably well mapped. Within the Region there are five very broadly defined geologic/ground water settings:

- Shallow Bedrock
- Lake Ontario Shoreline
- South Slope Till Plain
- Oak Ridges Moraine
- North Slope Till Plain

Major Aquifers

Major aquifers occur throughout the Region of Durham. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major overburden aquifers in the area. Municipal and domestic water supplies are provided from overburden aquifers. Lesser quantities of generally poorer quality water are available from bedrock aquifers throughout most of the Region.

Aquifer characteristics of the overburden fall into four broad areas based on physiographic and stratigraphic relationships. These are:

- Oak Ridges Moraine;
- South Slope;
- North Slope;
- Shallow Overburden.

Ground Water Use

Much of the southern portion of Durham Region, south of the Oak Ridges Moraine, is urban land which is serviced by water from Lake Ontario. Urban growth is expanding northward from the built-up area along the Lake Ontario shoreline. As this occurs,

communities are switching from traditional ground water supplies to Lake Ontario water. Major overburden aquifers in the South Slope aquifer complex are therefore gradually being abandoned as a source of domestic water supply. However, the demand for municipal ground water supplies from the Oak Ridges Moraine has increased in recent years from communities to the north as residential development continues to increase the demand for water.

Bedrock aquifers are not heavily utilized as a source of municipal or domestic water in Durham Region due to the relatively poor aquifer characteristics of the bedrock. Exceptions to this occur where there is a shallow depth to bedrock and no alternative water supplies are available.

3.1.2 Surface Water and Surface Water Use

Drainage

The Region of Durham is situated in three major watersheds, namely:

- Lake Simcoe/Georgian Bay;
- Lake Ontario; and
- Trent River System.

The drainage divide between these three major watersheds runs from east to west.

The northwestern quarter (approximately) of Durham drains northwest to the Lake Simcoe/Georgian Bay flow system. The major streams in this area are:

- Black River;
- Pefferlaw Brook; and
- Beaverton River.

The northeastern quarter (approximately) of Durham drains to the Trent River System. Drainage from Lake Scugog is north and east via the Trent River System discharging eventually to Lake Ontario. The major streams in this area are:

- Nonquon River; and
- East Cross Creek.

The remainder of the Region drains to Lake Ontario. The southerly half (approximately) of Durham drains directly to Lake Ontario. The major streams in this area are:

- Rouge River;
- Duffin Creek;
- Lynde Creek;
- Pringle Creek;
- Oshawa Creek;
- Farewell Creek;
- Bowmanville Creek;
- Wilmot Creek; and
- Ganaraska River (part).

The major surface water body in the area is Lake Ontario. The Region of Durham borders on Lake Ontario. Two other major lakes in the Region include Lake Simcoe and Lake Scugog.

Stream Water Quality

A number of active water quality stations are located on rivers and streams in the Region. These stations are part of the Provincial Water Quality Monitoring Network operated by the Ministry of Environment and Energy. In addition to routine data collection, special studies have been undertaken on some watercourses, including Wilmot Creek.

Water quality in streams in the area is generally impacted by surface water runoff from:

- urban land use;
- transportation corridors; and
- agricultural land use.

Better water quality is likely to be found in the head water areas of watercourses where point source inputs and urban land use are absent and agricultural intensity is low. Important fisheries occur in several streams throughout the area.

Lakes

As indicated previously, there are three major lakes in the study area:

- Lake Ontario;
- Lake Simcoe; and
- Lake Scugog.

Lake Ontario has received much study by provincial and federal agencies, due to its important role as a source of drinking water to communities along its shore and its high recreational value.

Persistent toxic substances and eutrophication have been identified as problems in Lake Ontario by the International Joint Commission and its member agencies.

A number of areas of concern have been identified in the Great Lakes including two near the Region, namely Toronto Harbour and Port Hope. Provincial Water Quality Objectives are exceeded in these areas. As a result, intensive studies have been initiated to develop remedial action plans.

Eutrophication has long been recognized as a problem in the lower Great Lakes. Annex 3 of the 1978 Great Lakes Water Quality Agreement between Canada and United States outlines reductions in phosphorus loadings to Lake Ontario to be achieved by the parties to the Agreement. As a result, the provincial and federal governments are jointly working towards a program to reduce the input of phosphorous through point source and non-point source remedial measures.

Lake Simcoe has also received attention in recent years, primarily as a result of impairment of water quality from agricultural activities. The Lake Simcoe Environmental Management Studies (Lake Simcoe Environmental Management Committee, 1985) found that the Lake is receiving an excessive supply of phosphorous which is contributing to eutrophication problems and identified various remedial measures that should be undertaken. The general water quality in the Lake is adequate for most recreational activities but localized problems occur.

Lake Scugog was investigated by the MOEE as part of its Recreational Lakes Program. At that time, water quality was found to be generally acceptable; however, bacteriological contamination was identified in some localized areas and the lake was found to be highly enriched and supported excessive amounts of aquatic plants and suspended algae.

Surface Water Use

Surface water in Durham Region is used for a wide variety of purposes including:

- aquatic life;
- recreation;
- drinking water supply;
- industrial water;
- agriculture; and
- waste assimilation.

Several major water uses occur along the Lake Ontario shoreline. These include intakes for municipalities and industries, and sewage plant outfalls.

3.1.3 Biological Characterization

The portion of the study area which drains to Lake Ontario is heavily urbanized. This has resulted in negative impacts on streamflow and water quality, which in turn have affected the structure of fish communities. Natural vegetation consists of remnant woodlots and treed river valley and ravine areas. These areas provide habitat for plant and animal species.

Major rivers in or near Durham Region within the Lake Ontario drainage basin include the Rouge and Ganaraska. Considerable effort has been expended in developing an anadromous salmonid fishery in this area. Major watercourses in the Region within the Lake Simcoe drainage basin include Pefferlaw Brook and Beaverton River. These watercourses generally support warm-water fish populations. Agricultural land uses are prominent in the basins of the watercourses draining to Lake Simcoe.

The Oak Ridges Moraine is a prominent topographic feature in Durham Region which acts as a watershed divide between the Lake Ontario and Lake Simcoe drainages. It lies in an east-west direction in the middle of the area. The Moraine is of biological significance because it contains large tracts of forest and it contributes baseflow to headwater areas of cold and cool-water streams.

The southern part of the study area is within the Deciduous Forest Region. Plant communities having southern affinities are well represented, for example, in the valley of

the Rouge River. The northern part of the study area is situated within the Great Lakes - St. Lawrence Forest Region.

The biology of most of Durham Region has been relatively well studied. Basin and Regional surveys have established the status of bird and plant species.

3.2 Metro Toronto

3.2.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Groundwater Overview

The geologic and ground water conditions within Metro Toronto are variable, mainly due to the fact that the general area has been glaciated several times in recent geologic history. Generally, the geologic and ground water conditions are reasonably well understood in the area. Within Metro Toronto there are three very broadly defined geologic/ground water settings:

- Shallow Bedrock
- Lake Ontario Shoreline
- South Slope Till Plain

Major Aquifers

Major aquifers occur throughout Metro Toronto. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major overburden aquifers in the area.

Aquifer characteristics of the overburden fall into two broad areas based on physiographic and stratigraphic relationships. These are:

- South Slope; and
- Shallow Overburden.

Ground Water Use

Metro Toronto is generally urban land which is serviced by water from Lake Ontario. Urban growth has expanded northward from the Lake Ontario shoreline. Communities in

Metro Toronto have switched from traditional ground water supplies to Lake Ontario water. Major overburden aquifers in the South Slope aquifer complex have been replaced as a source of domestic water supply. Bedrock aquifers are not typically utilized in Metro Toronto either.

3.2.2 Surface Water Characterization

Drainage

Metro Toronto is situated in the Lake Ontario watershed. Surface water in Metro Toronto drains southwards to Lake Ontario.

The major streams and surface water drainage areas within Metro Toronto are:

- Etobicoke Creek
- Mimico Creek
- Humber River
- Don River
- Highland Creek and
- Rouge River.

The major surface water body in the Region is Lake Ontario. Metropolitan Toronto borders on the northern shoreline of Lake Ontario.

Stream Water Quality

Water quality stations are located on rivers and streams in Metro Toronto. These stations are part of the Provincial Water Quality Monitoring Network operated by the Ministry of Environment and Energy. In addition, to routine data collection, many special studies have been undertaken throughout the area including Mimico Creek, Humber River and the Don River.

Water quality in streams in the Region is generally impacted by both point source and diffuse source inputs including:

- industrial discharges;

- urban land use; and
- transportation corridors.

Provincial Water Quality Objectives are exceeded for several parameters at stations throughout the Region.

Lakes

Lake Ontario has received much study by provincial and federal agencies due to its important role as a source of drinking water to communities along its shore, and its high recreational value.

Persistent toxic substances and eutrophication have been identified as problems in Lake Ontario by the International Joint Commission and its member agencies.

Areas of concern have been identified in the Great Lakes including one in Metro Toronto, namely Toronto Harbour. Provincial Water Quality Objectives are exceeded at this location. As a result, intensive studies have been initiated to develop remedial action plans.

Surface Water Use

Surface water is used for a wide variety of purposes in Metro Toronto including:

- aquatic life
- recreation
- drinking water supply
- industrial water; and
- waste assimilation.

Several major water uses occur along the Lake Ontario shoreline. These include intakes for municipalities and industries, and sewage plant outfalls.

3.2.3 Biological Characterization

The Region of Metro Toronto which drains to Lake Ontario is heavily urbanized. This has resulted in negative impacts on streamflow and water quality, which in turn have affected the structure of fish communities. Natural vegetation consists of remnant

woodlots and treed river valley and ravine areas. These areas provide habitat for plant and animal species.

Major rivers in Metro Toronto and within the Lake Ontario drainage basins include: the Humber, Don and Rouge. Considerable effort has been expended in developing an anadromous salmonid fishery in this area.

The Oak Ridges Moraine is a prominent topographic feature north of Metro Toronto which acts as a watershed divide between the Lake Ontario and Lake Simcoe drainages. The moraine is of biological significance because it contains large tracts of forest and it contributes baseflow to headwater areas of the cold and cool-water streams.

Metro Toronto is within the Deciduous Forest Region. Plant communities having southern affinities are well represented, for example, in the valley of the Rouge River.

The biology of the Metro Toronto area has been relatively well studied. Basin and Regional surveys have established the status of bird and plant species.

3.3 York

3.3.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Groundwater Overview

The geologic and ground water conditions within York Region are variable, largely owing to the fact that the area has been glaciated several times in recent geologic history. There has been a great deal of study in the area allowing the geologic and ground water conditions to be reasonably well understood. In the Region there are five very broadly defined geologic/ground water settings:

- South Slope Till Plain
- Oak Ridges Moraine
- North Slope Till Plain
- Schomberg Plains
- Holland Lowlands

Major Aquifers

Major aquifers occur throughout the York Region. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major overburden aquifers in the area. Municipal and domestic water supplies are provided from overburden aquifers. Lesser quantities of generally poorer quality water are available from bedrock aquifers throughout most of the Region.

Aquifer characteristics of the overburden fall into three broad areas based on physiographic and stratigraphic relationships. These are:

- Oak Ridges Moraine;
- South Slope; and
- North Slope.

Ground Water Use

Much of York Region, south of the Oak Ridges Moraine, is urban land which is serviced by water from Lake Ontario. Urban growth is expanding northward from the Metropolitan Toronto area. As this occurs, more communities are switching from traditional ground water supplies to Lake Ontario water. Major overburden aquifers in the South Slope aquifer complex are therefore gradually being replaced as a source of domestic water supply. However, the demand for municipal ground water supplies from the Oak Ridges Moraine and deep overburden aquifers within bedrock valleys are presently increasing for communities in the northern part of the Region (Oak Ridges, Aurora, Newmarket) as residential development continues to increase the demand for water.

Bedrock aquifers are not heavily utilized as a source of municipal or domestic water in the Region due to the abundance of overburden aquifers and the relatively poor aquifer characteristics of the bedrock. Exceptions to this occur where there is a shallow depth to bedrock and no alternative water supplies are available.

3.3.2 Surface Water and Surface Water Use

Drainage

The Region of York is situated in two major watersheds, namely:

- Lake Simcoe/Georgian Bay and
- Lake Ontario.

The drainage divide between these two major watersheds runs from east to west through the middle of the Region. The drainage divide parallels the Oak Ridges Moraine.

The northern half (approximately) of York drains northwest to the Lake Simcoe/Georgian Bay flow system. The major streams in this area are:

- Holland River
- Maskinonge River
- Black River and
- Pefferlaw Brook.

The southerly half (approximately) of York drains to Lake Ontario. The major streams in this area are:

- Humber River
- Don River
- Highland Creek
- Rouge River and
- Duffin Creek.

The major surface water body in the Region is Lake Simcoe.

Stream Water Quality

Active water quality stations are located on rivers and streams in the York Region. These stations are part of the Provincial Water Quality Monitoring Network operated by the Ministry of Environment and Energy. In addition to routine data collection, many special studies have been undertaken on some watercourses including the Humber River, Don River, Holland River and Black River.

Water quality in streams in the area is generally impacted by both point source and diffuse source inputs including:

- sewage treatment plant effluent;
- industrial discharges;
- urban land use;
- transportation corridors; and
- agricultural land use.

Provincial water quality objectives are exceeded for several parameters at stations throughout the Region. Better water quality is likely to be found in the headwater areas of watercourses where point source inputs and urban land use are absent and agricultural intensity is low. Important fisheries occur in several streams throughout the area.

Lakes

Lake Simcoe has received attention in recent years, primarily as a result of impairment of water quality from agricultural activities. The Lake Simcoe Environmental Management Studies (Lake Simcoe Environmental Management Committee, 1985) found that the Lake is receiving an excessive supply of phosphorus which is contributing to eutrophication problems and identified various remedial measures that should be undertaken. The general water quality in the Lake is adequate for most recreational activities but localized problems occur.

Surface Water Use

Surface water in York Region is used for a wide variety of purposes including:

- aquatic life;
- recreation;
- drinking water supply;
- industrial water;
- agriculture; and
- waste assimilation.

3.3.3 Biological Characterization

Major rivers in the Region within the Lake Ontario drainage basin include: the Humber, Don and Rouge. Considerable effort has been expended in developing an anadromous salmonid fishery in this area. Major watercourses in the Region within the Lake Simcoe drainage basin include: the Holland River, Black River and Pefferlaw Brook. These watercourses generally support warm-water fish populations. Agricultural land uses are prominent in the basins of the watercourses draining to Lake Simcoe.

The Oak Ridges Moraine is a prominent topographic feature in York Region which acts as a watershed divide between the Lake Ontario and Lake Simcoe drainages. The moraine is of biological significance because it contains large tracts of forest and it contributes baseflow to headwater areas of the cold and cool-water streams.

The southern part of the Region is within the Deciduous Forest Region. Plant communities having southern affinities are well represented, for example, in the valley of the Rouge River. The northern part of the study area is situated within the Great Lakes-St. Lawrence Forest Region.

The biology of most of the Region has been relatively well studied. Basin and Regional surveys have established the status of bird and plant species.

3.4 Peel

3.4.1 Geologic/Ground Water Setting and Ground Water Use

Geologic/Groundwater Overview

The geologic and ground water conditions in the Region of Peel are quite variable. Within the Region there are seven very broadly defined geologic/ground water settings. These settings are:

- Niagara Escarpment;
- Hillsburgh Sandhills;
- Guelph Drumlin Field;
- Oak Ridges Moraine;
- South Slope Till Plain;

- Peel Plain; and
- Lake Iroquois Plain.

Major Aquifers

Major aquifers occur throughout the Region of Peel. These include both overburden and bedrock aquifers. Substantial quantities of ground water are available from the major bedrock and overburden aquifers in the area. Municipal and domestic water supplies are provided from bedrock and overburden aquifers.

Peel Region has a complex hydrogeologic setting as a result of its diverse geological history. In general, relatively permeable glacial deposits (ice contact stratified drift) in the northern portion act as ground water recharge areas to overburden aquifers and the bedrock.

The Amabel bedrock formation in the northwestern corner of the Region is recharged where it is exposed on the surface or is overlain by a thin covering of glacial drift. It forms part of the Guelph - Amabel aquifer which is a major Regional high capacity aquifer, with yields of 0.76 to greater than 3.8 litres per second (10-50 gpm). The permeability of the aquifer is primarily due to chemical dissolution of dolomite along fractures and bedding planes. Shale bedrock to the east of the escarpment has poor ground water yield potential, generally less than 0.15 litres per second (2 gpm) but can reach 0.76 litres per second (10 gpm) if the shale is jointed and has calcareous lenses.

Overburden ground water yields of greater than 0.76 L/s (10 gpm) have been identified in sand and gravel deposits in glacial meltwater channels extending south from Orangeville, in and underlying the Brampton Esker, southwest and northeast of Brampton and in isolated areas throughout the Region. East of the escarpment in the northern half of the Region, ground water yields of 0.15 to 0.76 litres per second (2 to 10 gpm) are obtained from shallow deposits of sands and gravels interbedded with minor clay lenses. In the area north of the escarpment and the southern half of the Region, less permeable clay and till deposits provide yields of less than 0.15 to 0.76 litres per second (2 gpm).

Ground Water Use

Much of the southern portion of the Region of Peel is urban land which is serviced by water from Lake Ontario. Urban growth continues to expand northward from the built-up area (Mississauga) on Lake Ontario. As this growth occurs, communities will continue to

switch from traditional ground water supplies to Lake Ontario water. Generally, the municipalities in Peel Region located north of Brampton rely on ground water as the source of their domestic water supply.

3.4.2 Surface Water Characterization

Drainage

The Region of Peel is situated in two major watersheds, namely:

- Lake Simcoe/Georgian Bay; and
- Lake Ontario.

The majority of Peel Region drains southeast to Lake Ontario. This represents the area south of the Oak Ridges Moraine (approximately).

The major streams in this area are:

- Humber River;
- Credit River;
- Etobicoke Creek; and
- Mimico Creek.

A very small area in the northern part of Peel Region (north of the Oak Ridges Moraine) drains to Georgian Bay and Lake Simcoe. There are no major streams for this drainage system in Peel Region. Surface water drains to the Nottawasaga River, Bailey Creek and Holland River, which are situated outside of the Region.

The major surface water body in the area is Lake Ontario.

Stream Water Quality

Water quality in streams in the Region is generally impacted by point source and diffuse source inputs including:

- industrial discharges;
- urban land use;

- transportation corridors; and
- agricultural land use.

Provincial Water Quality Objectives are exceeded for several parameters at monitoring stations in the Region. Improved water quality is likely to be found in the head water areas of watercourses where point source inputs and urban land use are absent and agricultural intensity is low.

Lakes

Lake Ontario is the only major lake in the area. A great deal of study has been conducted on Lake Ontario due to its important role as a source of drinking water to communities along its shore and its high recreational value.

Surface Water Use

Surface water in the Region of Peel is used for a wide variety of purposes including:

- aquatic life;
- recreation;
- drinking water supply;
- industrial water;
- agriculture; and
- waste assimilation

Several major water uses occur along the Lake Ontario shoreline. These include intakes for municipalities and industries, and sewage plant outfalls.

3.4.3 Biological Characterization

Significant natural environment features exist in the Region of Peel. These natural environment features include:

- provincial parks and Conservation Authority lands;
- hazard lands (as identified in official plans);
- environmentally significant areas;
- areas of natural and scientific interest (ANSI's-life and earth sciences);

- provincially and Regionally significant wetlands (Class 1-7);
- OMNR Agreement and *Woodlot Improvement Act* (WIA) forests;
- licensed pits and quarries;
- significant warm-water and cold-water watercourses.

The Region of Peel is located in the Great Lakes St. Lawrence Forest Region. Natural woody vegetation in this region is characterized by eastern white and red pines, eastern hemlock and yellowbirch. The majority of the forested areas of the Region lie within Caledon reflecting the rural character of the Town. Extensive urban development has removed much of the large wooded areas in the City of Mississauga and to a lesser degree in the City of Brampton. In these areas, forest resources are generally restricted to scattered woodlots, ravines and environmentally protected areas. The forest management potential generally is low in Mississauga, low to moderate in the City of Brampton and moderate to high in the Town of Caledon. Similarly, important wildlife resource areas associated with valley lands, upland habitat (e.g. Niagara Escarpment) and ravines are more concentrated in the Town of Caledon. Important ravines are also associated with the Lake Ontario shoreline.

The cold-water headwaters of the Credit and Humber Rivers lie within the northern half of Caledon which has been identified by MNR as a cold-water stream zone. The Credit River from approximately Highway 403 to Lake Ontario, which has migratory salmonid runs, is a fish sanctuary.

4. ASSESSMENT AND EVALUATION OF THE 3RS SYSTEMS

4.1 Introduction

This chapter outlines the assessment and evaluation of the alternative 3Rs systems, undertaken for each Region, with respect to the natural environment. The assessment and evaluation of the systems includes a net effects assessment of the alternative systems and evaluating the systems for each Region to identify a ranking of systems with respect to the natural environment.

4.2 Approach Overview

The assessment and evaluation of 3Rs systems was completed based on the ranking of natural environment criteria and the environmental net effects of each system, after the application of mitigation and enhancement measures. The following sections outline the three key aspects of the assessment and evaluation of the 3Rs systems.

4.2.1 Criteria Ranking

The Natural Environment Criteria Group contains three criteria. To assist in identifying a ranking of the 3Rs systems for this criteria group, the individual criteria were ranked. This criteria ranking was completed on the basis of the level of importance of the criteria relative to the other criteria. In order to rank the criteria, consideration was given to the magnitude of effects, duration of effects, significance of effects, certainty of effects and the relative difference among alternative systems being examined for the four Regions and for the GTA overall.

Two categories of importance were identified for the Natural Environment Criteria Group. The criteria "potential for effects to aquatic systems including surface water and ground water resources" and "potential for effects to atmospheric environment" were considered to be equal and the most important. These two criteria were given the highest ranking since potential effects from the 3Rs systems may be significant loss/removal or disruption of aquatic systems and resources, and exceed established regulatory standards with respect to discharges of contaminants to the atmosphere. The duration of these potential effects may also be throughout the life of the alternative. However, the occurrence of the effects is expected to be intermittent and any effects may be reduced by the mitigative measures.

The criterion "potential for effects to terrestrial systems and resources" was ranked lowest since the magnitude of any effects possible from an alternative system are not expected to result in the significant loss/removal or disruption of terrestrial systems and resources. The potential effects which may occur are expected to occur during the short-term. There is also a high potential to mitigate any effects that are predicted to occur. Mitigative measures include following an appropriate site selection process for facilities, the installation of design features to prevent or restrict discharges to the environment, and implementing contingency measures in the event of an accident.

The criteria ranking for the Natural Environment Criteria Group and the rationale for the ranking is provided in Table 4.1.

TABLE 4.1
NATURAL ENVIRONMENT CRITERIA GROUP
CRITERIA RANKING

NATURAL ENVIRONMENT		
Criterion	Rank Order¹	Rationale
Criterion 1		
Potential for effects to terrestrial systems and resources	2	This criterion is ranked the lowest since the magnitude of effects possible for the range of systems are expected to be within accepted standards. Most effects are unlikely to occur or are expected to occur during the short-term. There is a high potential to mitigate any potential effects by proper siting of new facilities.
Criterion 2		
Potential for effects to aquatic systems including surface water and ground water resources	1	This criterion is ranked the highest since potential effects may be significant exceeding accepted standards. Potential effects may occur throughout the life of the option. The occurrence of the effects is expected to be intermittent. Mitigative measures may reduce effects but will not eliminate them.
Criterion 3		
Potential for effects to atmospheric environment	1	This criterion is ranked the highest since potential effects may be significant exceeding accepted standards. Potential effects may occur throughout the life of the option. The occurrence of the effects is expected to be intermittent. Mitigative measures may reduce effects but will not eliminate them.

1. A ranking of "1" is to represent the criterion considered to be the most important.

4.2.2 System Net Effects Analysis

A total of six regionally based alternative residential waste 3Rs systems were developed by the study team for the Regions of Durham, Metro Toronto, York and Peel. Six alternative 3Rs systems were also developed for the institutional, commercial and industrial (IC&I) sectors, but for the GTA as a whole. This was due to the large overlap between the Regions for waste management components serving the IC&I sector. The residential and IC&I systems are described in detail in the EA Input Document.

The net effects analysis of the residential systems was not specifically undertaken for each Region. Due to the large overlap of components for the six systems between the four Regions, the analysis was completed at a generic level of detail. These generic systems included all potential 3Rs components for a particular regional system. Potential effects, mitigation and net effects were developed for each component category within a system and presented in tabular form. The component categories included a group of components with similar characteristics. This generic analysis was completed for each indicator of the three criteria within the Natural Environment Criteria Group.

The generic system net effects by component were then reviewed with respect to the specific regional 3Rs system description. The purpose of this step was to complete a net effects analysis for each individual system for each Region. The specific regional system descriptions including the identification of components, allowed the corresponding net effects to be identified from the generic system net effects. The net effects for each component category of a particular system were then combined for each criteria indicator, into system net effects by indicator.

The system net effects for each indicator of a criterion were then combined. The resultant system net effects by criterion were used to complete the evaluation of systems. The advantages/disadvantages of each system, relative to the other systems, were also developed by criterion. Net effects common to all systems were not carried forward as advantages or disadvantages because they were not useful in comparing the systems.

Once the net effects assessment was completed for each 3Rs system within a Region, the six systems were then evaluated. By comparing the relative advantages and disadvantages between the six systems, the systems were ranked for each of the three natural environment criteria. The systems were ranked from highest to lowest for each criterion.

The system rankings for each criterion were then considered in conjunction with a ranking of the three natural environment criteria. The relative differences and trade-offs among the systems were examined based on the importance of the criteria. The result was the

development of the overall system rankings for each Region within the Natural Environment Criteria Group.

A similar net effects assessment and evaluation of alternative 3Rs systems was completed for the IC&I sector. However, generic systems and net effects were not developed on a Regional basis. Rather, the IC&I systems were developed for the GTA as a whole. Consequently, the system net effects tables by component completed for the IC&I sector are for the entire GTA and were not completed in a generic manner.

4.2.3 Mitigation and Enhancement Measures

4.2.3.1 Approach

Mitigation and enhancement measures were included as part of the assessment and evaluation of 3Rs systems because, if properly implemented, they can avoid, prevent, reduce the severity or redress the effects to the natural environment that are associated with the various system components. These measures are presented in the residential and IC&I generic system net effects tables by component in Schedules B and E, respectively.

The mitigation and enhancement measures were applied at the generic level. The evaluation of site specific effects and appropriate mitigation measures was not possible at the level of detail of this analysis. However, it was appropriate in this analysis to identify the general effects of all the system components, possible mitigation and enhancement measures and the potential net effects.

The success of mitigation and/or enhancement measures was important to the overall system ranking because if they are likely to avoid, prevent, reduce the severity of or redress the negative natural environment effects, the net effects of the system will be reduced and its overall ranking may improve. Enhancement measures were applied which enhance the positive effects.

There are effects associated with some of the system components that are unlikely to be fully mitigated. Where this occurs, the net effect was noted. In some cases, where there was uncertainty about the magnitude and significance of the potential effect, the mitigation or enhancement was outlined in general terms.

4.2.3.2 Types of Mitigation and Enhancement Measures

A wide range of mitigation and enhancement measures were identified for components of the 3Rs systems. Generally, these measures can be organized by both the criterion and by the type of system components. Three criteria were used to assess effects to the natural environment: Potential for Effects to Terrestrial Systems and Resources; Potential for Effects to Aquatic Systems Including Surface Water and Ground Water resources; and Potential for Effects to Atmospheric Environment.

Potential for Effects to Terrestrial Systems and Resources

The majority of the potential for effects to terrestrial systems and resources were associated with the facilities required in the 3Rs systems. The effects from facilities may vary and the mitigation measures may be developed to the specific effects. However, generally the facilities were considered in two categories.

The first category included those facilities which are already in place, and in the event of an accident at these facilities may result in the loss or removal or disruption to terrestrial systems and resources. These facilities included household hazardous waste (HHW) depots, collection days and toxic taxi. An event at one of these facilities resulting in effects may include spills, leaks, fires and vehicle upset. The types of mitigation measures included relocating facilities to alternate locations, including design features at a facility (e.g. sump drains, containment berms, fire prevention equipment) and developing contingency measures for spills, fire control and emergency response, including staff training and appropriate equipment.

The second category of facility included those which are to be developed as part of a system. The development of some facilities may result in the loss or removal of terrestrial systems and resources. This is dependent upon the type and size of facilities. This category included composting facilities, materials recovery facilities (MRF), mixed waste processing facilities, depots and transfer stations. Proper siting of these facilities was identified as an essential mitigation measure.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

The potential for effects to aquatic systems including surface and ground water resources was also mainly associated with the facilities required in the 3Rs systems. The mitigation measures to minimize loss or removal and disruption effects to terrestrial systems were

also directly applicable to this criterion. However, additional mitigation measures were considered necessary to minimize effects to aquatic systems and water resources.

These mitigation measures included the development of a storm water management plan (e.g. site grading, runoff collection pond, berms, ditches) and implementing monitoring programs. Similarly, to minimize loss or removal and disruption of ground water resources, compost facilities would include the collection or attenuation of leachate. These mitigation and enhancement measures were also applied to existing facilities (HHW, compost, MRF) in the 3Rs systems.

Public education and promotion of 3Rs programs, along with enforcement, were identified as mitigation measures to minimize effects due to the illegal dumping of wastes.

Potential for Effects to Atmospheric Environment

For this criterion, the effects from the system components are a result of the day-to-day operations. These effects include emissions to the atmosphere in the form of vehicle exhaust, dust, odours, bioaerosols and other gaseous emissions. Most of these emissions are generated by vehicles or from composting and materials processing operations. These effects are mitigated through regular maintenance and cleaning programs, following proper operating procedures (including public education) and installing control systems to collect and treat the air within a facility.

4.3 Assessment and Evaluation

The six alternative residential 3Rs systems to be assessed are: Existing, Existing/Committed, Direct Cost, Expanded Blue Box, Wet/Dry and Mixed Waste Processing. The six generic residential systems are outlined in Schedule B. This includes a description of the components and component categories in each system. The generic system net effects tables by component for the residential sector are also presented in Schedule B. The tables contain an assessment of each system for each indicator of the three criteria. The components of the Region-specific residential 3Rs systems are described in Schedule C. The system net effects tables for each Region are presented in Schedule D.

The six alternative IC&I systems to be assessed are: Existing, Existing/Committed, Extended 3Rs Regulations, Expanded 3Rs Regulations, Expanded 3Rs Regulations with Organics and No Unprocessed Waste to Landfill.

The components of the IC&I 3Rs systems are described in Schedule C. The system net effects tables by component for the IC&I sector are presented in Schedule E. This includes a description of the components in each system. The IC&I system net effects tables are contained in Schedule F.

The assessment and evaluation of alternative residential 3Rs systems is presented in the following sections for Durham, Metro Toronto, York and Peel Regions respectively. The assessment and evaluation of alternative IC&I systems for the GTA is then presented.

4.3.1 Region of Durham Systems Ranking

4.3.1.1 Ranking of Systems by Criterion

In order to identify a ranking of the 3Rs systems for Durham Region, the system alternatives were first ranked by criterion within the Natural Environment Criteria Group. The system rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system net effects tables contained in Schedule D. The system rankings for the three natural environment criteria are discussed below. The systems rankings, by criterion, are summarized in Table 4.2.

For the purpose of the systems evaluation with respect to the natural environment, Systems 6A and 6B were considered to be the same. These system evaluations are combined and referred to as System 6.

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources were predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset condition. The potential for loss or removal and disruption effects due to accidents was expected to be the same for all systems. System 1 (Existing), System 2 (Existing/Committed) and System 4 (Expanded Blue Box) have all the necessary facilities in place with the exception of a new MRF. The development of the materials recovery facility is not expected to result in the loss/removal or disruption of

TABLE 4.2
REGION OF DURHAM
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked with Systems 2 and 4	Highest ranked with Systems 1 and 4	Second lowest ranked with System 5	Highest ranked with Systems 1 and 2	Second lowest ranked with System 3	Lowest ranked
Potential for effects to terrestrial systems and resources	Highest ranked due to: - potential loss or removal effects are due to siting new MRF and in the event of accidents at HHW depots - potential disruption effects are due to accidents at HHW depots	Highest ranked due to: - potential loss or removal effects are due to siting new MRF and in the event of accidents at HHW depots - potential disruption effects are due to accidents at HHW depots	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots - potential disruption effects are due to accidents at HHW depots - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential loss or removal effects are due to siting new MRF and in the event of accidents at HHW depots - potential disruption effects are due to accidents at HHW depots	Lowest ranked due to: - potential loss or removal effects due to siting of new MRF and new central compost facility and accidents at HHW depots - potential disruption effects due to accidents at HHW depots	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and mixed waste processing and composting facility and accidents at HHW depots - potential disruption effects due to accidents at HHW depots
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: - potential loss or removal effects due to discharges from existing HHW depots and compost facility - potential disruption effects due to siting new MRF and additional discharges from HHW depots and compost facility	Highest ranked due to: - potential loss or removal effects due to discharges from existing HHW depots and compost facility - potential disruption effects due to siting new MRF and additional discharges from HHW depots and compost facility	Lowest ranked due to: - potential loss or removal effects due to discharges from existing HHW depots and compost facility - potential disruption effects due to siting new MRF and discharges from HHW depots and compost facility - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential loss or removal effects due to discharges from existing HHW depots and compost facility - potential disruption effects due to siting new MRF and additional discharges from HHW depots and compost facility	Second highest ranked due to: - potential loss or removal effects due to discharges from HHW depots and compost facility - potential disruption effects due to siting new MRF and new compost facility and discharges from new compost facility and existing HHW depots	Lowest ranked due to: - potential loss or removal effects due to discharges from HHW depots, central compost facility and mixed waste processing/compost facility - potential disruption effects due to siting new MRF and mixed waste processing/composting facility and discharges from existing and new facilities

TABLE 4.2
REGION OF DURHAM
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
(continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to the atmospheric environment	Highest ranked due to: emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Second lowest ranked due to: emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases additional emissions may result from wet waste composting	Lowest ranked due to: emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases additional emissions from mixed waste processing and composting facility

terrestrial systems and resources. These three systems were considered equal and ranked highest. System 3 (Direct Cost) also requires a new MRF. However, the disadvantage of this system is that there is a higher likelihood of illegal dumping of wastes occurring, making it ranked lower than Systems 1, 2 and 4. The disadvantage of Systems 5 and 6 (Wet/Dry and Mixed Waste Processing, respectively) is that both require two new facilities in addition to those which already exist. It is expected that potential effects to terrestrial systems and resources can be effectively mitigated. This includes the siting of new facilities in areas with compatible land uses (i.e. industrial zoned areas). System 5 requires a new MRF and central compost facility. Similarly, System 6 requires a new MRF and a new mixed waste processing and compost facility. Systems 3, 5 and 6 were considered to be equal and have the highest potential for the loss/removal or disruption of terrestrial systems and resources. Although Systems 5 and 6 require one more new facility than System 3, the effects will likely be offset by the illegal dumping of wastes anticipated to occur in System 3.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems were expected to occur for reasons similar to effects on terrestrial systems and resources (i.e. location of facility, discharges from the facility, accidents). However, additional effects to aquatic systems may occur due to discharges from 3Rs facilities. These discharges are expected to be in the form of leachate or contaminated surface water runoff from central compost and HHW facilities. The potential for effects due to discharges from existing 3Rs facilities was considered to be equal for all systems. No additional discharges are expected from the development of the new MRF for Systems 1, 2 and 4. As a result of this advantage, these systems were ranked equal and highest. System 5 was ranked second highest, ahead of Systems 3 and 6. System 5 (Wet/Dry) requires a new MRF and new central compost facility. However, the advantages of this system are that any new discharges are expected to be minimized since only dry recyclable materials are processed at the MRF and the compost facility is an in-vessel facility. The in-vessel facility also replaces the existing central compost facility. System 3 (Direct Cost) requires only a new MRF but it is anticipated that illegal dumping of wastes will occur as a result of this system. This dumping of wastes and its potential effects on aquatic systems is considered a disadvantage and make the system rank lower. System 6 was considered equal to System 3 and ranked lowest. System 6 requires a new MRF and new mixed waste processing and central compost facility. The potential effects on aquatic systems from these new facilities were expected to be similar to those disadvantages of System 3.

Potential for Effects to the Atmospheric Environment

All six system alternatives were expected to have emissions to the atmosphere. These emissions include dust, odours, and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. There was no differentiation between systems based on these emissions. Emissions to the atmosphere are reduced by such measures as following proper operating procedures at the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmospheric environment from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. System 1 to 4 do not include the management of wet waste or mixed waste which was considered an advantage. These four systems were considered equal and ranked highest. System 5 includes the composting of wet waste while System 6 includes mixed waste processing and composting. Due to the different nature of the two processes, with wet waste composting to be done using in-vessel technology and mixed waste processing being open to the atmosphere (i.e. windrow technology), the disadvantages of System 6 were considered to be the greatest and the system was ranked lowest.

4.3.1.2 Overall System Ranking

By considering the ranking of systems by criterion and the criteria rankings together, an overall system ranking can be completed for the Natural Environment Criteria Group. The Existing, Existing/Committed and Expanded Blue Box systems were ranked highest for each of the three criteria. As a result, these systems were ranked highest overall for the Natural Environment Criteria Group. System 3 was ranked second lowest along with System 5. This system was ranked lower than Systems 1, 2 and 4 due to disadvantages associated with potential effects to terrestrial systems and resources, and aquatic systems and water resources from siting a new MRF and from illegal dumping of wastes. System 5 requires a new MRF and central compost facility. Due to the compost facility being an in-vessel facility and other existing compost facilities closing, the overall effects and advantages/disadvantages were considered to be equal to those of System 3.

System 6 (Mixed Waste Processing) was the lowest ranked system for all three criteria. Potential effects to the atmospheric environment from Mixed Waste Processing were considered to be greater than for System 3. The potential effects for the other criteria were considered equal for these two systems.

4.3.2 Metro Toronto Systems Ranking

4.3.2.1 Ranking of Systems by Criterion

The 3Rs systems for Metro Toronto were ranked by initially ranking the six system alternatives by criterion within the Natural Environment Criteria Group. The system rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system net effects tables for the Region of Metro Toronto. These tables are contained in Schedule D. The system rankings for each of the three natural environment criteria are discussed below. The system rankings, by criterion, are summarized in Table 4.3.

When evaluating Systems 6A and 6B, these systems were considered to be the same with respect to the natural environment. These systems were combined and referred to as System 6 for the evaluation.

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources are predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset conditions. The potential for loss or removal and disruption effects due to accidents was expected to be the same for all six systems. Systems 1, 2 and 4 (Existing, Existing/Committed and Expanded Blue Box respectively) were considered equal and each ranked highest since they had similar advantages. Systems 1, 2 and 4 all include the same new MRF, resulting in similar effects to terrestrial systems and resources for the systems.

System 3, the Direct Cost system, also includes the same new MRF. However, this system is ranked lower due to the disadvantage of the higher likelihood of illegal dumping of wastes and its resulting effects. The Direct Cost system was the lowest ranked system in terms of potential for effects to terrestrial systems and resources along with Systems 5 and 6. System 5 (Wet/Dry) requires two new 3Rs facilities while System 6 (Mixed Waste Processing) requires three new facilities. The effects from these facilities, and the advantages/disadvantages of the systems, were considered equal to System 3 given that all facilities would be located in a highly urbanized area.

TABLE 4.3
METRO TORONTO
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked with Systems 2 and 4	Highest ranked with Systems 1 and 4	Second lowest ranked with System 5	Highest ranked with Systems 1 and 2	Second lowest ranked with System 3	Lowest ranked
Potential for effects to terrestrial systems and resources	Highest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots or toxic taxi - potential disruption effects are due to accidents at HHW depots or toxic taxi	Highest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots or toxic taxi - potential disruption effects are due to accidents at HHW depots or toxic taxi	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots or toxic taxi - potential disruption effects are due to accidents at HHW depots or toxic taxi - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots or toxic taxi - potential disruption effects are due to accidents at HHW depots or toxic taxi	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots or toxic taxi - potential disruption effects due to accidents at HHW depots or toxic taxi	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and in the event of accidents at HHW depots or toxic taxi - potential disruption effects due to accidents at HHW depots or toxic taxi
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: - potential disruption effects due to siting new MRF and discharges from HHW depots, toxic taxi and central compost facilities - potential loss or removal effects due to discharges from existing facilities	Highest ranked due to: - potential disruption effects due to siting new MRF and discharges from HHW depots, toxic taxi and central compost facilities - potential loss or removal effects due to discharges from existing facilities	Lowest ranked due to: - potential disruption effects due to siting new MRF and discharges from HHW depots, toxic taxi and central compost facilities - potential loss or removal effects due to discharges from existing facilities - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential disruption effects due to siting new MRF and discharges from HHW depots, toxic taxi and central compost facilities - potential loss or removal effects due to discharges from existing facilities	Second highest ranked due to: - potential disruption effects due to siting new MRF and discharges from HHW depots, toxic taxi and central compost facilities - potential loss or removal effects due to discharges from existing facilities	Lowest ranked due to: - potential disruption effects due to siting new MRF and two new mixed waste processing and composting facilities and accidents at HHW depots or toxic taxi - potential loss or removal and disruption effects due to discharges from existing facilities and from new compost facility

TABLE 4.3
METRO TORONTO
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
(continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to the atmospheric environment	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases additional emissions may result from wet waste composting 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases additional emissions from mixed waste processing and composting facilities

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems and water resources were expected due to facility location, discharges from a facility and accidents. Leachate or contaminated surface water runoff from HHW and central compost facilities was expected to result in the most significant effects. All systems were considered equal with respect to effects as a result of discharges from existing facilities. Systems 1, 2 and 4 have similar advantages and were ranked equally and highest. These three systems require the same new 3Rs facility, a MRF. System 5 (Wet/Dry) was ranked second highest. This system requires a new MRF and central compost facility. However, an advantage of this system is that any discharges are expected to be minimized since only dry recyclables are processed at the MRF and the compost facility is an in-vessel facility. The in-vessel facility would also replace all existing windrow compost facilities.

The disadvantages of System 3 (Direct Cost) and System 6 (Mixed Waste Processing) resulted in both systems being ranked lowest. The Direct Cost system has the same new facility requirements as Systems 1, 2 and 4. However, due to the higher likelihood of illegal dumping of wastes in the Direct Cost system, the system was ranked lower. System 6 requires a new MRF and two mixed waste processing facilities. The potential for effects due to discharges from these facilities was considered to be greater than those facilities required by the other systems. The effects are expected to be minimized since the facilities will be located in a highly urbanized area.

Potential Effects to the Atmospheric Environment

The six system alternatives were expected to have emissions to the atmosphere. These emissions include dust, odours, bioaerosols and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. Emissions to the atmosphere are reduced by such measures as following proper operating procedures at the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmosphere from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. Systems 1, 2, 3 and 4 do not include the management of wet waste or mixed waste which was considered an advantage. These four systems were equally ranked as highest.

System 5 (Wet/Dry) was ranked second lowest of the systems. This system includes wet waste composting at an in-vessel facility. As a result additional emissions are expected. This facility also replaces the existing central windrow compost facilities. System 6 was

ranked lowest. This system includes the processing and composting of mixed wastes at two locations. This system is lowest ranked due to the nature of the wastes being managed and since the processing and composting of wastes is less controlled (i.e. windrow facility) than at an in-vessel compost facility.

4.3.2.2 Overall System Ranking

Combining the ranking of systems by criterion and the criteria rankings allows an overall system ranking to be completed for the Natural Environment Criteria Group. For each of the three criteria, the Existing, Existing/Committed and Expanded Blue Box systems were ranked highest. Systems 1, 2 and 4 were the highest ranked systems overall. System 5 was ranked lower than these three systems due to potential effects to terrestrial systems and aquatic systems as a result of siting new 3Rs facilities and discharges from the new central compost facility. This lower ranking was also due to the disadvantage of the potential for effects to the atmospheric environment from the composting of wet waste.

System 3 (Direct Cost) was ranked second lowest of the systems overall along with System 5 (Wet/Dry). The Direct Cost system requires a new MRF, while System 5 requires a MRF and central compost facility. However, the higher likelihood of illegal dumping of wastes occurring in the Direct Cost system, and its effects to terrestrial and aquatic systems, is a disadvantage which results in the lower overall ranking. When considering the Wet/Dry system, the potential effects to aquatic systems are reduced by in-vessel composting but there is expected to be an increase in emissions to the atmosphere from wet waste composting.

System 6 was ranked lowest overall for the six systems. This system was expected to have the greatest potential for effects to the atmosphere from Mixed Waste Processing and composting. Similarly, potential effects to aquatic systems were expected to be the greatest of all systems due to siting of the mixed waste facility and discharges from the facility.

4.3.3 Region of York Systems Ranking

4.3.3.1 Ranking of Systems by Criterion

A ranking of the 3Rs systems for York Region was identified by initially ranking the system alternatives by criterion within the Natural Environment Criteria Group. The system rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the Region of York's individual system net effects tables contained in Schedule D. The system rankings for the three

natural environment criteria are discussed below. The system rankings, by criterion, are summarized in Table 4.4.

For the purpose of the systems evaluation with respect to the natural environment, Systems 6A and 6B were considered to be the same. These system evaluations are combined and referred to as System 6.

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources were predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset condition. The potential for loss or removal and disruption effects due to accidents was expected to be the same for all systems. Systems 1, 2 and 4 (Existing, Existing/Committed and Expanded Blue Box systems respectively) each require a new materials recovery facility resulting in similar potential effects to terrestrial systems and resources. Systems 1, 2 and 4 were considered to be the highest ranked systems.

System 3 (Direct Cost) and System 5 (Wet/Dry) both require the same new MRF as Systems 1, 2 and 4. However, additional effects are anticipated for System 3 due to a higher likelihood of illegal dumping of wastes occurring. System 5 requires a new in-vessel central compost facility. The potential effects and advantages/disadvantages for System 5 are expected to be similar to System 3, and thus both systems are ranked lowest.

System 6 (Mixed Waste Processing) requires a new MRF and a new Mixed Waste Processing and composting facility. Due to the area typically required for a mixed waste facility, System 6 is predicted to have the highest potential for effects to terrestrial systems and resources, and is therefore ranked lowest.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Similar to effects on terrestrial systems and resources, potential effects to aquatic systems were expected due to facility location, discharges from a facility and accidents. The largest potential for effects was expected to be as result of leachate or contaminated surface water runoff from HHW and central compost facilities. All systems were considered equal with respect to effects as a result of discharges from existing facilities.

TABLE 4.4
REGION OF YORK
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked with Systems 2 and 4	Highest ranked with Systems 1 and 4	Second lowest ranked with System 5	Highest ranked with Systems 1 and 2	Second lowest ranked with System 3	Lowest ranked
Potential for effects to terrestrial systems and resources	Highest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW collection days or mobile depot	Highest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW collection days or mobile depot	Lowest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW collection days or mobile depot - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW collection days or mobile depot	Lowest ranked due to: - potential loss or removal effects due to siting of new MRF and new compost facility - potential loss or removal and disruption effects due to accidents at HHW collection days or mobile depot	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and new mixed waste processing and composting facility - potential loss or removal and disruption effects due to accidents at HHW collection days or mobile depot
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW collection days and mobile depot, and central compost facility	Highest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW collection days and mobile depot, and central compost facility	Lowest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW collection days and mobile depot, and central compost facility - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW collection days and mobile depot, and central compost facility	Second Highest ranked due to: - potential disruption effects due to siting new MRF and compost facility - potential loss or removal and disruption effects due to discharges from HHW collection days and mobile depot, and central compost facility	Lowest ranked due to: - potential disruption effects due to siting MRF and mixed waste processing/composting facility - potential loss or removal and disruption effects due to discharges from HHW collection days and mobile depot, central compost facility and mixed waste facility

TABLE 4.4
REGION OF YORK
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
(continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to the atmospheric environment	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> · emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> · emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> · emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> · emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases 	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> · emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases · additional emissions may result from wet waste composting 	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> · emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases · additional emissions from mixed waste processing and composting facility

Systems 1, 2 and 4 each have a new MRF. Siting this facility may result in some effects, but no additional discharges are expected. Systems 1, 2 and 4 were ranked equal and highest.

System 3 (Direct Cost), System 5 (Wet/Dry) and System 6 (Mixed Waste Processing) include the same new MRF. The effects of a new MRF on aquatic systems are not expected to be significant since only dry recyclables are processed. However, these three systems have disadvantages associated with them. System 5 also requires a new in-vessel central compost facility for wet wastes and which also replaces the existing windrow compost facility. The likelihood of illegal dumping of wastes as a result of a Direct Cost system is expected to result in increased effects to aquatic systems and water resources. Compared to the Wet/Dry system, System 6 requires a new Mixed Waste Processing facility in addition to the new MRF. The potential effects on aquatic systems from this system were anticipated to be similar to those for System 3. The Wet/Dry system was ranked second highest, while Systems 3 and 6 were ranked equally as the lowest for all systems.

Potential Effects to the Atmospheric Environment

All six system alternatives were expected to have emissions to the atmosphere. These emissions include dust, bioaerosols, odours and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. There was no differentiation between systems based on these emissions. Emissions to the atmosphere are reduced by such measures as following proper operating procedures of the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmospheric environment from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. Systems 1, 2, 3 and 4 do not include the management of wet wastes or mixed wastes. These systems were all ranked highest. System 5 (Wet/Dry) was ranked lower than these systems due to the disadvantage of the substantive quantity of wet waste composted. System 6 (Mixed Waste Processing) was ranked lowest due to the nature of the mixed wastes and the processing method being typically open to the surrounding atmosphere.

4.3.3.2 Overall System Ranking

When considering the ranking of systems by criterion and the criteria rankings together, an overall system ranking can be completed for the Natural Environment Criteria Group. System 1 (Existing), System 2 (Existing/Committed) and System 4 (Expanded Blue Box)

were ranked highest for each of the three criteria. As a result, these systems were ranked highest overall.

System 3 (Direct Cost) and System 5 (Wet/Dry) were ranked second lowest of the systems. These systems require the same new MRF as Systems 1, 2 and 4. However, the Direct Cost system has a higher likelihood of illegal dumping of wastes, resulting in additional effects to terrestrial systems and aquatic systems. The Wet/Dry system also includes a new in-vessel central compost facility for wet wastes. It is expected to result in increased emissions to the atmosphere from wet waste composting. The effects and advantages/disadvantages of the two systems were considered to be equal, thus the same ranking.

System 6 had the most disadvantages and was ranked lowest for all three criteria. Consequently, System 6 was ranked lowest overall. This system required a new MRF and mixed waste processing facility resulting in a higher potential for effects to terrestrial systems and aquatic systems. Potential effects to the atmospheric environment from Mixed Waste Processing were also considered to be greater than emissions from any of the other five systems.

4.3.4 Region of Peel Systems Ranking

4.3.4.1 Ranking of Systems by Criterion

In order to identify a ranking of the 3Rs systems for the Region of Peel, the six system alternatives were first ranked by criterion within the Natural Environment Criteria Group. The systems rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system net effects tables for Peel Region contained in Schedule D. The system rankings for the three natural environment criteria are discussed below. The system rankings, by criterion, are summarized in Table 4.5.

For the purpose of the systems evaluation with respect to the natural environment, Systems 6A and 6B were considered to be the same. These system evaluations are combined and referred to as System 6.

Potential for Effects to Terrestrial Systems and Resources

Effects to terrestrial systems and resources were predicted to occur as a result of siting new 3Rs facilities and due to discharges of wastes or potentially harmful materials as a result of some accident or upset condition. The potential effects due to accidents was expected to be the same for all systems. System 1 (Existing), System 2 (Existing/Committed) and System 4 (Expanded Blue Box) require an additional facility to those which already exist. Each of these systems requires a new MRF. It is expected that potential effects to terrestrial systems and resources can be effectively mitigated. This includes the siting of this new facility in an area with compatible land uses (i.e. industrial zoned areas). These three systems were ranked equal and highest overall. System 3 (Direct Cost) requires the same new facility as Systems 1, 2 and 4. However, the disadvantage of the Direct Cost system is a higher likelihood of illegal dumping of wastes occurring, making it lower ranked. The potential effects of illegal dumping are expected to be comparable to the effects and disadvantages associated with the siting of an additional facility in Systems 5 and 6. Systems 5 and 6 were ranked equal with System 3 and lowest overall. System 5 (Wet/Dry) requires a new in-vessel central compost facility in addition to the new MRF identified for the other systems. System 6 requires a new Mixed Waste Processing and compost facility, in addition to the new MRF required by the other systems. These systems were predicted to have the highest potential for the loss/removal or disruption of terrestrial systems and resources.

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems were expected to occur for reasons similar to effects on terrestrial systems and resources (i.e. location of facility, discharges from the facility, accidents). However, additional effects to aquatic systems may occur due to discharges from 3Rs facilities. These discharges are expected to be in the form of leachate or contaminated surface water runoff from HHW and central compost facilities. The potential for effects due to discharges from existing 3Rs facilities was considered to be equal for all systems. Systems 1, 2 and 4 were ranked equal and highest. These systems all require a new MRF. The potential effects from this facility are expected to be minimal since the MRF will process only dry recyclables. System 5 (Wet/Dry) is ranked second highest as it requires both a new MRF and an in-vessel central compost facility. Effects from additional discharges from this compost facility may occur and is a disadvantage of the system. System 3 (Direct Cost) also requires the new MRF but it is anticipated that illegal dumping of wastes will occur as a result of this system. This dumping of wastes and its potential effects on aquatic systems make it ranked lowest.

TABLE 4.5
REGION OF PEEL
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
IMPACT						
Natural	Highest ranked with Systems 2 and 4	Highest ranked with Systems 1 and 4	Second lowest ranked with System 5	Highest ranked with Systems 1 and 2	Second lowest ranked with System 3	Lowest ranked
Potential for effects to terrestrial systems and resources	Highest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW depot	Highest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW depot	Lowest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects are due to accidents at HHW depot - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential loss or removal effects due to siting new MRF - potential loss or removal and disruption effects due to accidents at HHW depot	Lowest ranked due to: - potential loss or removal effects due to siting of new MRF and new compost facility - potential loss or removal and disruption effects due to accidents at HHW depot	Lowest ranked due to: - potential loss or removal effects due to siting new MRF and mixed waste processing and composting facility - potential loss or removal and disruption effects due to accidents at HHW depot
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW depot and central compost facilities	Highest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW depot and central compost facilities	Lowest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW depot and central compost facilities - potential disruption effects due to illegal dumping of wastes	Highest ranked due to: - potential disruption effects due to siting new MRF - potential loss or removal and disruption effects due to discharges from HHW depot and central compost facilities	Second Highest ranked due to: - potential disruption effects due to siting new MRF and compost facility - potential loss or removal and disruption effects due to discharges from HHW depot and new central compost facility	Lowest ranked due to: - potential disruption effects due to siting MRF and mixed waste processing/composting facility - potential loss or removal and disruption effects due to discharges from HHW depot, central compost facilities and new mixed waste facility

TABLE 4.5
REGION OF PEEL
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT
(continued)

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 (A + B) Mixed Waste Processing
Potential for effects to the atmospheric environment	Highest ranked due to: - emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: - emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: - emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Highest ranked due to: - emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases	Second lowest ranked due to: - emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases - additional emissions may result from wet waste composting	Lowest ranked due to: - emissions to atmosphere include dust, exhaust, odours, bioaerosols and gases - additional emissions from mixed waste processing and composting facility

along with System 6. A new MRF and mixed waste processing and composting facility are part of System 6. The potential effects on aquatic systems and resources from these new facilities were expected to be greater than the other systems.

Potential Effects to the Atmospheric Environment

All six alternatives were expected to have emissions to the atmosphere. These emissions include dust, odours, bioaerosols and gases generated at MRFs and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. There was no differentiation between systems based on these emissions. Emissions to the atmosphere are reduced by such measures as following proper operating procedures of the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. The potential for effects to the atmospheric environment from emissions was expected to be greater if wet waste (household organic) or mixed waste was being processed and/or composted at centralized facilities in large volumes. Systems 1 to 4 do not include the management of wet waste or mixed waste and the associated disadvantages. These four systems were ranked equal and highest. System 5 includes the composting of wet waste while System 6 includes Mixed Waste Processing and composting. Due to the different nature of the two processes, with the wet waste composting to be done using in-vessel technology and Mixed Waste Processing and composting typically being open to the atmosphere (i.e. windrow technology), the potential effects of System 6 were considered to be the greatest and the system was ranked lowest.

4.3.4.2 Overall System Ranking

By considering the ranking of systems by criterion and the criteria rankings together, an overall system ranking can be completed for the Natural Environment Criteria Group. The Existing, Existing/Committed and Expanded Blue Box systems were ranked highest for each of the three criteria. As a result, these systems were ranked highest overall for the Natural Environment Criteria Group. The Direct Cost system, although requiring the same new 3Rs facility and having the same potential effects, was ranked lower than these systems. The potential effects on terrestrial systems and aquatic systems from illegal dumping of wastes were disadvantages which resulted in the lower ranking. The Wet/Dry system was ranked second lowest with the Direct Cost system having less potential effects on aquatic systems but greater potential effects to the atmospheric environment.

System 6 (Mixed Waste Processing) was the lowest ranked system for all three criteria. System 6 was ranked the lowest system overall. Potential effects to the atmospheric environment and to aquatic systems from System 6 were considered to be greater disadvantages than those identified for Systems 3 and 5.

4.3.5 GTA IC&I Systems Ranking

4.3.5.1 Ranking of Systems by Criterion

In order to identify a ranking of the 3Rs systems for the GTA IC&I sector, the system alternatives were first ranked by criterion within the Natural Environment Criteria Group. The systems rankings by criterion were based on the "system net effects by criterion" and "advantages/disadvantages by criterion" documented in the individual system net effects tables contained in Schedule F. The IC&I system rankings for the three natural environment criteria are discussed below. The system rankings by criterion are summarized in Table 4.6.

Potential for Effects to Terrestrial Systems and Resources

For the IC&I 3Rs systems, effects to terrestrial systems and resources were predicted to occur as a result of expanding existing facilities or from siting new facilities. System 1 (Existing), and System 2 (Existing/Committed) for the IC&I sector do not require any new facilities. These two systems were both ranked highest for this criterion. Both Systems 3 and 4 require additional capacity to process larger quantities of dry recyclables. These systems include expansions to existing MRFs, to accommodate these increased quantities, or the siting of new MRFs. The potential effects due to these expansions or new facilities can largely be mitigated by siting facilities in areas of compatible land uses. As a result of these disadvantages, Systems 3 and 4 were ranked equally and slightly lower than Systems 1 and 2, or third highest. Systems 5 and 6 require both additional processing capacity for dry recyclables and increased capacity for the composting of wet wastes. These systems will require the siting of new MRFs and new compost facilities. The siting of these facilities is expected to result in a greater potential for effects to terrestrial systems due to the loss or removal of existing terrestrial features. Systems 5 and 6 were equally ranked lowest of the six systems due to these disadvantages.

TABLE 4.6
GTA IC&I
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 No Unprocessed Waste to Landfill
IMPACT						
Natural	Highest ranked with System 2	Highest ranked with System 1	Third highest ranked with System 4	Third highest ranked with System 3	Lowest ranked with System 6	Lowest ranked with System 5
Potential for effects to terrestrial systems and resources	Highest ranked due to: · potential for effects is minimal since facilities already exist	Highest ranked due to: · potential for effects is minimal since facilities already exist	Third highest ranked due to: · potential loss or removal effects due to expanding existing MRFs or siting new MRFs	Third highest ranked due to: · potential loss or removal effects due to expanding existing MRFs or siting new MRFs	Lowest ranked due to: · potential loss or removal effects due to siting new MRFs and compost facilities	Lowest ranked due to: · potential loss or removal effects due to siting new MRFs and compost facilities
Potential for effects to aquatic systems including surface and ground water resources	Highest ranked due to: · potential loss or removal and disruption effects due to discharges from existing facilities	Highest ranked due to: · potential loss or removal and disruption effects due to discharges from existing facilities	Third highest ranked due to: · potential loss or removal and disruption effects due to discharges from existing facilities · new or expanded MRFs required which may result in additional disruption effects	Third highest ranked due to: · potential loss or removal and disruption effects due to discharges from existing facilities · new or expanded MRFs required which may result in additional disruption effects	Lowest ranked due to: · potential loss or removal and disruption effects due to discharges from existing facilities · potential loss or removal and disruption effects due to siting new MRFs and compost facilities and discharges from new compost facilities	Lowest ranked due to: · potential loss or removal and disruption effects due to discharges from existing facilities · potential loss or removal and disruption effects due to siting new MRFs and compost facilities and discharges from new compost facilities

TABLE 4.6
GTA IC&I
NET EFFECTS SUMMARY FOR NATURAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 No Unprocessed Waste to Landfill
Potential for effects to the atmospheric environment	Highest ranked due to: <ul style="list-style-type: none">· emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases	Highest ranked due to: <ul style="list-style-type: none">· emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases	Third highest ranked due to: <ul style="list-style-type: none">· emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases· additional emissions due to increased collection vehicle requirements	Third highest ranked due to: <ul style="list-style-type: none">· emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases· additional emissions due to increased collection vehicle requirements	Lowest ranked due to: <ul style="list-style-type: none">· emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases· additional emissions due to increased collection vehicle requirements and IC&I organics processing	Lowest ranked due to: <ul style="list-style-type: none">· emissions to atmosphere include dust, odours, exhaust, bioaerosols and gases· additional emissions due to increased collection vehicle requirements and IC&I organics processing

Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources

Potential effects to aquatic systems and water resources were expected to occur as a result of siting facilities and discharges from facilities. Effects may include the disruption of local surface water drainage patterns due to the siting of a facility or the discharge of contaminants from facilities. These discharges may include leachate and surface water runoff, containing silt and organic materials, from central compost facilities. The potential for effects due to discharges from existing 3Rs facilities was considered to be equal for all six of the IC&I systems. Systems 1 and 2 require no new or expanded facilities. These two systems were ranked highest. The new or expanded MRFs necessary to process increased quantities of dry recyclables in Systems 3 and 4 may result in some additional effects. These effects are expected to be minimal since no discharges are likely from these dry processes. Systems 3 and 4 were ranked slightly lower than the first two systems and third highest because of this disadvantage. A significant increase in the quantity of wet wastes (IC&I organics) will be processed and composted in Systems 5 and 6. Both systems require the siting of new MRFs and compost facilities. Potential effects are also expected due to discharges from the new compost facilities. As a result of these disadvantages, Systems 5 and 6 were ranked equally as the lowest of the six IC&I systems.

Potential for Effects to the Atmospheric Environment

All six IC&I system alternatives were expected to have emissions to the atmospheric environment. These emissions include dust, odours, bioaerosols, and gases generated at MRFs, processing centres and compost facilities, with dust and exhaust emissions generated by waste collection vehicles. Emissions to the atmosphere are reduced by such measures as following proper operating procedures at the facility, installation of emission controls, regular facility cleaning and vehicle maintenance. Effects to the atmospheric environment from emissions was expected to increase with the level of collection vehicle requirements and amount of IC&I organics processed and composted at centralized facilities in large volumes. An increase in vehicle emissions was considered to be a disadvantage of the system. Systems 1 and 2 maintain the present level of waste collection service and IC&I organics processing, resulting in no increase in emissions. These two IC&I systems were equally ranked highest. Systems 3 and 4 require that increased quantities of dry recyclables be collected. As a result these systems have increased collection vehicle requirements and additional emissions to the atmosphere. These systems were both ranked third highest. The last two systems, Systems 5 and 6, are expected to have the greatest potential for effects to the atmospheric environment. Both systems include an increased level of IC&I organics collection and processing.

These systems have the greatest requirements for collection vehicles. They also have the largest amount of IC&I organics processing and composting. Systems 5 and 6 were ranked lowest.

4.3.5.2 Overall System Ranking

Combining the ranking of systems by criterion with the criteria rankings allows an overall system ranking to be completed for the Natural Environment Criteria Group. Systems 1 and 2 (Existing and Existing/Committed respectively) were both ranked highest for each of the three criteria. These two systems do not require any new 3Rs facilities, increased vehicle collection requirements or increase in IC&I organics processing. Systems 1 and 2 will result in the lowest potential for effects to the natural environment. Systems 3 and 4 both require the expansion of existing MRFs or the siting of new MRFs. The siting of these new facilities may result in potential effects to both terrestrial systems and aquatic systems. Increased collection vehicle requirements are also required, resulting in additional emissions to the atmosphere. Systems 3 and 4 were ranked third highest for all these criteria. Overall, Systems 3 and 4 were ranked third highest.

IC&I System 5 and System 6 were both ranked lowest. These two systems require increased processing capacity for dry recyclables and IC&I organics. This includes the siting of new MRFs and compost facilities. These systems are expected to have the greatest effects on terrestrial and aquatic systems due to siting new facilities and discharges from the new compost facilities. In addition, these systems have the largest collection vehicle requirements and largest amount of IC&I organics processing. Systems 5 and 6 are expected to have the greatest level of emissions to the atmosphere for all of the systems.

5. SUMMARY OF FINDINGS

The results of the assessment and evaluation of the residential 3Rs systems, with respect to the natural environment, are summarized in Table 5.1 for the four Regions.

TABLE 5.1
SUMMARY OF RESIDENTIAL 3RS SYSTEM RANKINGS BY REGION
NATURAL ENVIRONMENT

Region	System 1 Existing	System 2 Existing/ Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Durham	Highest ranked	Highest ranked	Second lowest ranked	Highest ranked	Second lowest ranked	Lowest ranked
Metro Toronto	Highest ranked	Highest ranked	Second lowest ranked	Highest ranked	Second lowest ranked	Lowest ranked
York	Highest ranked	Highest ranked	Second lowest ranked	Highest ranked	Second lowest ranked	Lowest ranked
Peel	Highest ranked	Highest ranked	Second lowest ranked	Highest ranked	Second lowest ranked	Lowest ranked

The Existing, Existing/Committed and Expanded Blue Box systems were ranked equally as the highest system for all four Regions. These three systems each require the same new 3Rs facility in addition to existing facilities, which may result in effects to the natural environment. Those components already in place were considered to have only a minimal effect on the natural environment. These components were assumed to be operating within the applicable standards. Potential effects from non-facility related components (e.g. collection, residential household composting, etc.) were considered indistinguishable between these systems.

The fourth and fifth ranked systems for the four Regions were the Direct Cost and Wet/Dry systems. These systems were ranked equally for each Region. Both systems require the same new 3Rs facilities as the highest ranked systems. The effects on the natural environment were expected to be greater for the Direct Cost system due to the anticipated illegal dumping of wastes. The Wet/Dry system requires an additional new 3Rs facility (in-vessel central compost facility) and is also expected to have a higher potential for effects to the atmospheric environment from the wet waste composting.

For all four Regions, Mixed Waste Processing was the lowest ranked system. This system typically required the greatest number of new 3Rs facilities resulting in a higher potential

for effects to terrestrial systems and aquatic systems. Also, due to the nature of mixed wastes and the processing of these wastes, potential effects to the atmospheric environment were expected to be greater than for any of the other systems.

The results of the assessment and evaluation of the IC&I systems, with respect to the natural environment, are summarized below in Table 5.2.

TABLE 5.2
IC&I 3RS SYSTEM RANKINGS
NATURAL ENVIRONMENT

System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 No Unprocessed Waste to Landfill
Highest ranked	Highest ranked	Third highest ranked	Third highest ranked	Lowest ranked	Lowest ranked

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SCHEDULE A

List of 3Rs Component Contacts and Interview Questions

LIST OF 3Rs COMPONENT CONTACTS

Location and Operator/Contact	Date of Interview	Facility Type
Compost Facilities		
Pittsburgh Township, Ontario Mr. John Rhodes	April 6, 1993	Leaf and yard waste and some IC&I organics
City of Sarnia, Ontario Mr. Ken McKenzie	April 15, 1993	Leaf and yard waste
City of Scarborough, Ontario Ms. Debra Dale & Mr. John Minor	April 8, 1993	Leaf and yard waste
City of Mississauga, Ontario Mr. Jim Cuthill	April 12, 1993	Wet/Dry Pilot
Region of Halton, Ontario Mr. John Smith	April 16, 1993	Wet/Dry Pilot
Scott's Composting Farm, Milton, Ontario Mr. Jim Scott	April 6, 1993	IC&I Organics
Metro Toronto, Ontario Avondale Facility, Mr. Caesar Corvinelli Dufferin Facility, Mr. Bob Sawyer	April 14, 1993 April 14, 1993	Leaf and Yard Waste In-Vessel
LH Resource Management, Hensall, Ontario Mr. Mark Jacobs	April 16, 1993	IC&I Organics (In-vessel)
Processing Facilities		
Reidel Corporation, Portland, Oregon Mr. Jeep Reid, City of Portland	April 15, 1993	Mixed Waste/Compost
Region of Durham, Ontario Mr. Peter Watson	April 6, 1993	Residential Recyclables (Blue Box)
Wright County, Minnesota Mr. Chuck Davis	April 6, 1993	Mixed Waste/Compost
Waste Management Inc., Etobicoke, Ontario Mr. Steve Osbourne	April 8, 1993	IC&I Wastes
Metro Toronto, Ontario Commissioners Street Mr. Bob Sawyer	April 13, 1993	Residential Recyclables (Blue Box)
Household Hazardous Waste		
Region of Ottawa-Carleton, Ontario Mr. Phil Lefebvre	April 6, 1993	Permanent Depot

3Rs COMPONENT CONTACTS - INTERVIEW QUESTIONS

Facility Name:

Location:

Contact:

Telephone Number:

Date:

1. Facility Ownership? Public Private

2. Were any studies undertaken to site your facility and to predict possible biophysical and social environment effects associated with the facility?
Probe Points - Were there any detailed impact assessment studies undertaken related to ground and surface water, air quality, traffic volumes/routes, proximity to residences/businesses?
(If No, go to Question 4.)

3. What potential biophysical and social environment effects were predicted and how were they to be mitigated? Does the facility include any design features intended to reduce potential effects? Have you ever had to rely on these features?

4. Have there been any impacts on people, businesses, land, air, ground water from the operation of the facility?
 - Spills
 - Emission/Air Quality
 - Odours

- Noise
- Dust
- Traffic
- Rodents/Birds
- Other (Specify) _____.

5. Have there been any complaints about the operation of the facility?

- Noise
- Odour
- Rodents/Birds
- Spills
- Traffic
- Dust
- Trespassing (Probe for children.)
- Land Value Concerns
- Other (Specify) _____.

6. How have these identified effects and complaints been resolved?

- Installation of new design features.
- Monitoring.
- Operational change.
- Other (Specify) _____.

7. Do you think that changes in the composition of material managed at your facility would result in any other effects on the biophysical or social environments? If so what types of effects?

8. Is the quality of material coming to the site consistent month-to-month or does it vary?

9. How many people are employed in the operation of the facility?

	Number	Union	Municipal Jobs	Part-Time or Seasonal
Facility Staff				
Trucking Staff				

SCHEDULE B

Residential Generic System Net Effects Tables By Component

1. INTRODUCTION

The residential generic system net effects tables by component are presented in the following order:

Existing System	-	Tables B1.1 to B1.5
Existing/Committed System	-	Tables B2.1 to B2.5
Direct Cost System	-	Tables B3.1 to B3.5
Expanded Blue Box System	-	Tables B4.1 to B4.5
Wet/Dry System	-	Tables B5.1 to B5.5
Mixed Waste Processing System	-	Tables B6.1 to B6.5

TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>Garbage Collection and Disposal</u>	<ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u>	<ul style="list-style-type: none"> • Curbside collection of Blue Box materials from single family dwellings. Typical materials include at least ONP, PET, HDPE, glass, ferrous, aluminum • Expanded curbside collection to collect additional dry materials in some municipalities • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified. 	<ul style="list-style-type: none"> • None required. 	<ul style="list-style-type: none"> • No effects identified.
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified. 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Limited community composting • Limited vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)	<ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> • Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident
<u>Composting Facilities</u>	<ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified. 	<ul style="list-style-type: none"> • None required.
			<ul style="list-style-type: none"> • No effects identified.

TABLE B1.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> • Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial systems or resources expected due to siting of MRFs
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings. Typical materials include at least ONP, PET, HDPE, glass, ferrous, aluminum Expanded curbside collection to collect additional dry materials in some municipalities Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Limited community composting • Limited vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)	<ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Curbside collection of Blue Box materials from single family dwellings. Typical materials include at least ONP, PET, HDPE, glass, ferrous, aluminum • Expanded curbside collection to collect additional dry materials in some municipalities • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> • Drop-off depots for dry recyclables • Depots located at transfer stations • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households	• No effects identified	• None required	• No effects identified
<u>Residential Leaf and Yard Waste Collection</u> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites)	• No effects identified	• None required	• No effects identified
<u>Residential Household Composting</u> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Limited community composting • Limited vermicomposting	• No effects identified	• None required	• No effects identified

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u></p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program focused on the residential sector Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings. Typical materials include at least ONP, PET, HDPE, glass, ferrous, aluminum Expanded curbside collection to collect additional dry materials in some municipalities Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Limited community composting • Limited vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u></p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program focused on the residential sector Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings. Typical materials include at least ONP, PET, HDPE, glass, ferrous, aluminum Expanded curbside collection to collect additional dry materials in some municipalities Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depots for dry recyclables Depots located at transfer stations Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions.
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Limited community composting Limited vermicomposting 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere • Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere • Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere. 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles along streets • Regular sweeping of municipal streets to collect materials which may generate dust • Regular vehicle maintenance • Cover trucks collecting mulched trees to prevent release of dust and particulate • Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere • Provide staff working with HHW with appropriate safety equipment and training • Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> • Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated • Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated • Release of harmful air emissions is contained inside permanent HHW depot • Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B1.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B1.5
GENERIC SYSTEM NET-EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program focused on the residential sector Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required. 	<ul style="list-style-type: none"> No effects identified

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u>			
<ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial resources expected due to siting depots
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Additional community composting • Additional vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources • Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> • No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident • Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facility in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs

TABLE B2.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u>			
<ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Additional community composting • Additional vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u>	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required
<u>MRFs</u>	<ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required

TABLE B2.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Additional community composting • Additional vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems or water resources expected due to siting compost facility • Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters

TABLE B2.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u>	<ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Promotion and Education</u>	<ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Backyard composter distribution programs • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Additional community composting • Additional vermicomposting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility

TABLE B2.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of MRF
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u>	<ul style="list-style-type: none"> Drop-off depots for dry recyclables Depots located at transfer stations to provide recycling opportunities for self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust
<u>Residential Leaf and Yard Waste Collection</u>	<ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance
<u>Residential Household Composting</u>	<ul style="list-style-type: none"> Backyard composter distribution programs Large 3-bin composting units distributed to apartment and cooperative housing complexes Additional community composting Additional vermicomposting 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)	<ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere • Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere • Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> • Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated • Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated • Release of harmful air emissions is contained inside permanent HHW depot • Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B2.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u>			
<ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads • Direct cost system for garbage collection 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial resources expected due to siting depots
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources • Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> • No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident • Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facility in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs

TABLE B3.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on Direct Cost system • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Direct cost system for garbage collection 	<ul style="list-style-type: none"> Illegal dumping of wastes may occur due to Direct Cost system and potentially disrupt terrestrial systems and resources 	<ul style="list-style-type: none"> Provide opportunity for residents to reduce their waste load (e.g. recycling programs, backyard composters, etc.) before being penalized for producing too much refuse Public education and promotion of the cost saving implications of the program Enforcement of littering and illegal dumping by-laws 	<ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to illegal dumping of wastes will be minimized but not eliminated

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-Door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of community composting • Promotion of vermicomposting to multi-family units 	<ul style="list-style-type: none"> • No effects identified. 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>Composting Facilities</u>	<ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u>	<ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on Direct Cost system • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • Promotion/education of Direct Cost system and 3Rs programs reduces potential for illegal dumping of wastes and disruptive effects on terrestrial systems and resources 	<ul style="list-style-type: none"> • Develop programs which most effectively reach the residents of the municipality 	<ul style="list-style-type: none"> • Promotion/education of Direct Cost and 3Rs programs reduces potential for disruption of terrestrial systems and resources due to illegal dumping of wastes. Disruptive effects are not eliminated

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads • Limit on number of bags/containers set out for garbage collection • Direct cost system for garbage collection 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of community composting • Promotion of vermicomposting to multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)	<ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets <ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems or water resources expected due to siting compost facility • Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on Direct Cost system • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads • Direct cost system for garbage collection 	<ul style="list-style-type: none"> • Illegal dumping of wastes may occur due to Direct Cost system and potentially disrupt aquatic systems including surface and ground water resources 	<ul style="list-style-type: none"> • Provide opportunity for residents to reduce their waste load (e.g. recycling programs, backyard composters, etc.) before being penalized for producing too much refuse • Public education and promotion of the cost saving implications of the program • Enforcement of littering and illegal dumping by-laws 	<ul style="list-style-type: none"> • Potential for disruption effects to aquatic systems including surface and ground water resources due to illegal dumping of waters will be minimized but not eliminated

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities for self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of community composting • Promotion of vermicomposting to multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Composting Facilities <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by build-up of silt and organic materials 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of MRF

TABLE B3.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on Direct Cost system • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • Promotion/education on Direct Cost system and 3Rs programs reduces potential for illegal dumping of wastes and disruptive effects on aquatic systems including surface and ground water resources 	<ul style="list-style-type: none"> • Develop programs which most effectively reach the residents of the municipalities 	<ul style="list-style-type: none"> • Promotion/education of Direct Cost and 3Rs programs reduces potential for disruption of aquatic systems including surface and ground water resources due to illegal dumping of wastes. Disruptive effects are not eliminated

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Direct Cost
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads • Direct cost systems for garbage collection 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 10 or more units (3Rs Regulations) • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depots for dry recyclables Depots located at transfer stations to provide recycling opportunities for self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Promotion of community composting Promotion of vermicomposting to multi-family units 	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere • Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles along streets • Regular sweeping of municipal streets to collect materials which may generate dust • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated • Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
	<ul style="list-style-type: none"> • Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects and to the atmosphere 	<ul style="list-style-type: none"> • Cover trucks collecting mulched trees to prevent release of dust and particulate • Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere • Provide staff working with HHW with appropriate safety equipment and training • Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> • Release of harmful air emissions is contained inside permanent HHW depot • Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B3.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. Promotion/education program on Direct Cost system Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

	Component Environmental Effects	Mitigation/Enhancement	Component Net Effects	
<u>Residential Recycling and Collection</u>	<ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Curbside collection of Expanded Blue Box materials including plastics (PET, rigid plastic, bottles and tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units • Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots (collecting all Expanded Blue Box materials) for multi-family residents not serviced by recycling • Drop-off depots (collecting all Expanded Blue Box materials) for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial resources expected due to siting depots
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Promotion of vermicomposting to multi-family units Promotion of community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items (furniture) Permanent drop-off depots for household hazardous waste (HHW) Special household hazardous waste drop-off days (one per year, one per month, etc.) Toxic Taxi service for collection of large quantities of HHW at the household Mobile HHW depots 	<ul style="list-style-type: none"> Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u>	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facility in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required
<u>MRFs</u>	<ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of recyclables 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process

TABLE B4.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisement, etc. • Promotion/education program on Expanded Blue Box program • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u>			
<ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Curbside collection of Expanded Blue Box materials including plastics (PET, rigid plastic, bottles and tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units • Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots (collecting all Expanded Blue Box materials) for multi-family residents not serviced by recycling • Drop-off depots (collecting all Expanded Blue Box materials) for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u>	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required
<u>MRFs</u>	<ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required

TABLE B4.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisement, etc. • Promotion/education program on Expanded Blue Box program • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Curbside collection of Expanded Blue Box materials including plastics (PET, rigid plastic, bottles and tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units • Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots (collecting all Expanded Blue Box materials) for multi-family residents not serviced by recycling • Drop-off depots (collecting all Expanded Blue Box materials) for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Promotion of vermicomposting to multi-family units Promotion of community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items (furniture) Permanent drop-off depots for household hazardous waste (HHW) Special household hazardous waste drop-off days (one per year, one per month, etc.) Toxic Taxi service for collection of large quantities of HHW at the household Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisement, etc. • Promotion/education program on Expanded Blue Box program • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Curbside collection of Expanded Blue Box materials including plastics (PET, rigid plastic, bottles and tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units • Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots (collecting all Expanded Blue Box materials) for multi-family residents not serviced by recycling • Drop-off depots (collecting all Expanded Blue Box materials) for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depots for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of recyclables 	<ul style="list-style-type: none"> MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of MRF
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisement, etc. Promotion/education program on Expanded Blue Box program Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Expanded Blue Box
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Residential Recycling and Collection <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Curbside collection of Expanded Blue Box materials including plastics (PET, rigid plastic, bottles and tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units • Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots (collecting all Expanded Blue Box materials) for multi-family residents not serviced by recycling • Drop-off depots (collecting all Expanded Blue Box materials) for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini recycling depots) 	<ul style="list-style-type: none"> • Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> • Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> • Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u>	<ul style="list-style-type: none"> Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u>	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles along streets Regular sweeping of municipal streets to collect materials which may generate dust Regular vehicle maintenance Cover trucks collecting mulched trees to prevent release of dust and particulate Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere 	<ul style="list-style-type: none"> Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated Release of harmful air emissions is contained inside permanent HHW depot Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
		<ul style="list-style-type: none"> • Provide staff working with HHW with appropriate safety equipment and training • Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of recyclables 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols(e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions

TABLE B4.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisement, etc. • Promotion/education program on Expanded Blue Box program • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Self haul of waste to landfills and transfer stations by residents • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households and some "other" households • Separation of waste into three streams (wet, dry and garbage) by the householder • Expanded set of dry materials to be collected including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) • Large bins provided in the garbage management area of multi-family buildings, where space permits. Residents will be encouraged to separate their waste into three separate bags 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at compost facility to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, compost facility, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial resources expected due to siting depots
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Collection of leaf and yard waste as part of three stream pick-up • Separate brush collection • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and co-operative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources • Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> • No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident • Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) and leaf and yard waste 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site or numerous sites may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process Design facilities with optimal process method and capacity to reduce number of facilities and area required 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process and optimal design of compost facilities
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs

TABLE B5.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, pamphlets, advertisements, etc. • Promotion/education program for Wet/Dry system • Promotion/education program for source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Self haul of waste to landfills and transfer stations by residents • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households and some "other" households • Separation of waste into three streams (wet, dry and garbage) by the householder • Expanded set of dry materials to be collected including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) • Large bins provided in the garbage management area of multi-family buildings, where space permits. Residents will be encouraged to separate their waste into three separate bags 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at compost facility to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Collection of leaf and yard waste as part of three stream pick-up • Separate brush collection • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and co-operative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) and leaf and yard waste 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, pamphlets, advertisements, etc. • Promotion/education program for Wet/Dry system • Promotion/education program for source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Self haul of waste to landfills and transfer stations by residents • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households and some "other" households • Separation of waste into three streams (wet, dry and garbage) by the householder • Expanded set of dry materials to be collected including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) • Large bins provided in the garbage management area of multi-family buildings, where space permits. Residents will be encouraged to separate their waste into three separate bags 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at compost facility to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Collection of leaf and yard waste as part of three stream pick-up • Separate brush collection • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u>	<ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and co-operative housing complexes Promotion of vermicomposting to multi-family units Promotion of community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required
<u>Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</u>	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items (furniture) Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days (one per year, one per month, etc.) Toxic Taxi service for collection of large quantities of HHW at the household Mobile HHW depots 	<ul style="list-style-type: none"> HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) and leaf and yard waste 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems or water resources expected due to siting compost facility • Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, pamphlets, advertisements, etc. • Promotion/education program for Wet/Dry system • Promotion/education program for source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households and some "other" households • Separation of waste into three streams (wet, dry and garbage) by the householder • Expanded set of dry materials to be collected including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) • Large bins provided in the garbage management area of multi-family buildings, where space permits. Residents will be encouraged to separate their waste into three separate bags 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at compost facility to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Collection of leaf and yard waste as part of three stream pick-up • Separate brush collection • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and co-operative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) and leaf and yard waste 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of MRF

TABLE B5.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, pamphlets, advertisements, etc. • Promotion/education program for Wet/Dry system • Promotion/education program for source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Wet/Dry
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Self haul of waste to landfills and transfer stations by residents • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Provide carts to all single family households and some "other" households • Separation of waste into three streams (wet, dry and garbage) by the householder • Expanded set of dry materials to be collected including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles • Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) • Large bins provided in the garbage management area of multi-family buildings, where space permits. Residents will be encouraged to separate their waste into three separate bags 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at compost facility to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> • Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> • Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Collection of leaf and yard waste as part of three stream pick-up • Separate brush collection • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and co-operative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> • Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> • Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere • Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere • Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles along streets • Regular sweeping of municipal streets to collect materials which may generate dust • Regular vehicle maintenance • Cover trucks collecting mulched trees to prevent release of dust and particulate • Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere • Provide staff working with HHW with appropriate safety equipment and training • Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> • Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated • Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated • Release of harmful air emissions is contained inside permanent HHW depot • Potential for effects is reduced with use of safety equipment and training, but not eliminated

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Central composting facilities (in-vessel or windrow) for composting of source separated household organics (wet stream) and leaf and yard waste 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Potential for effects may be greater for composting of wet stream due to nature of the feedstock 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) Provide equipment to individual staff to restrict or prevent exposure to dust, bioaerosols and VOCs (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost. Effects may result due to nature of wet waste feedstock

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Reuse Centres and Activities <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization (such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
MRFs <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions

TABLE B5.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, pamphlets, advertisements, etc. • Promotion/education program for Wet/Dry system • Promotion/education program for source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Waste Processing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 6 or more units • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • Depot for recyclables requires siting which may result in the localized loss or removal of a small area of forest or agricultural resources 	<ul style="list-style-type: none"> • Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, commercial and industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial resources expected due to siting depots
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> Door-to-door distribution of backyard composters to 80% of single family households Large 3-bin composting units distributed to apartment and cooperative housing complexes Promotion of vermicomposting to multi-family units Promotion of community composting 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Special and weekly curbside collections of white goods Drop-off depots for white goods Special curbside collection for bulky items (furniture) Permanent drop-off depot for household hazardous waste (HHW) Special household hazardous waste drop-off days (one per year, one per month, etc.) Toxic Taxi service for collection of large quantities of HHW at the household Mobile HHW depots 	<ul style="list-style-type: none"> Depots for HHW, white goods and bulky items require siting which may result in localized loss/removal of small area of forest or agricultural resources Discharge of HHW to environment due to accidents (e.g. spills, leaks, fires, vehicle upset) may impact the localized growth of terrestrial biological systems, plants and agriculture resources 	<ul style="list-style-type: none"> Locate depots in areas of compatible land use (i.e. municipal works yards, transfer stations, industrial areas, landfill site) through siting process Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident Develop contingency measures for spills, fire control, emergency response, including staff training and available equipment. 	<ul style="list-style-type: none"> No loss/removal of forest or agriculture resources expected due to siting depots and installing design features to prevent discharges of HHW to the environment in the event of an accident Potential for loss/removal of terrestrial systems and resources is minimized and restricted to a small localized area by installing appropriate engineered features and by implementing contingency measures in the event of an accident

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste New mixed waste processing and composting facility 	<ul style="list-style-type: none"> Mixed waste processing and compost facilities may require significant site area depending on capacity of facility, compost method and size of curing area. Large site may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate processing and compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, municipal works yard) through siting process 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization such as Second Harvest Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agricultural resources 	<ul style="list-style-type: none"> Locate MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> No loss or removal of terrestrial systems or resources expected due to siting of MRFs

TABLE B6.1
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Waste Processing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 6 or more units • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to the environment due to accidents (e.g. spills, leaks, fires, vehicle upset) and disrupt the localized growth of terrestrial biological systems and resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, fire prevention, containment berms) at permanent HHW depots to prevent discharges to the environment in the event of an accident • Develop contingency measures for spills, fire control, emergency response including staff training and available equipment 	<ul style="list-style-type: none"> • Potential for disruption of terrestrial systems and resources is minimized and restricted to a small localized area by installing design features at HHW depots and implementing contingency measures in the event of an accident

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>Composting Facilities</u>	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste New mixed waste processing and composting facility 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> Municipal reuse centre Private reuse centre (e.g. Re-Uze, Scarborough) Non-profit reuse centre (Wastewise, Halton) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization such as Second Harvest Special goods exchange days 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>MRFs</u>	<ul style="list-style-type: none"> Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE B6.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Waste Processing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Garbage Collection and Disposal</u> <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 6 or more units • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the loss or removal of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and groundwater resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available, and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and fire halls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems including water resources expected due to installing design features at depots to prevent discharges of HHW, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • New mixed waste processing and composting facility 	<ul style="list-style-type: none"> • Mixed waste processing and compost facilities may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Locate processing and compost facilities in an area away from surface water bodies and drainage courses • Locate processing and compost facilities in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at processing and compost facilities to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at processing and compost facilities to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems or water resources expected due to siting processing and compost facilities • Potential for loss or removal of aquatic systems and water resources is minimized by facility design features to prevent discharges to surface and ground waters

TABLE B6.3
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization such as Second Harvest) • Special goods-exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Waste Processing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> • Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities • Collection of residential garbage from multi-family units by municipal forces or private contractors • Self haul of waste to landfills and transfer stations by residents • Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) • Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> • Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population • Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations • Curbside collection of additional dry materials • Recycling services at all multi-family buildings with 6 or more units • Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> • Drop-off depots for dry recyclables • Depots located at transfer stations to provide recycling opportunities to self-haul generators • Drop-off depots for multi-family residents not serviced by recycling • Drop-off depot for rural households • Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste • Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off) <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • HHW may be discharged to surface water and ground water resources due to accidents (e.g. spills, leaks, vehicle upset) resulting in the disruption of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features (e.g. sump drains, containment berms, low permeability flooring, site grading) at permanent HHW depots to prevent discharges to surface and ground water resources • Hold special HHW collections at locations away from surface and ground water resources, areas where containment of spills is available and areas where emergency response including trained staff and equipment are available. Examples of locations include public works yards, transfer stations, industrial areas and firehalls • Develop contingency measures for spills and emergency response (including staff training and available equipment) in the event of accidents at permanent and temporary depots or due to vehicle upsets 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems including water resources is minimized due to installing design features at depots, hold HHW collections at appropriate locations and having contingency measures in place

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Composting Facilities</u> <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • New mixed waste processing and composting facility 	<ul style="list-style-type: none"> • Mixed waste processing and compost facilities may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from mixed waste processing and compost facilities may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> • Locate processing and compost facilities in an area away from surface water bodies and drainage courses • Locate processing and compost facilities in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at processing and compost facilities to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). • Install features at processing and compost facilities to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting of facility

TABLE B6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u> <ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>MRFs</u> <ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • MRF covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial areas, landfill site, public works yard) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of MRF
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Residential Mixed Waste Processing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Regional recycling legislation (e.g. collection ban on grass clippings, Oakville) Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Recycling and Collection</u> <ul style="list-style-type: none"> Blue Box recycling mandated by provincial regulations for municipalities with more than 5,000 population Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Curbside collection of additional dry materials Recycling services at all multi-family buildings with 6 or more units Collection of bins of recyclables from multi-family units 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular sweeping of municipal streets to collect dust generating materials Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Recycling Depots and Transfer Stations</u> <ul style="list-style-type: none"> Drop-off depots for dry recyclables Depots located at transfer stations to provide recycling opportunities to self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Community Recycling Centres to accept recyclables, household hazardous waste, reusable items and residential waste Satellite drop-off facilities for recycling (neighbourhood recycling depots and mini-recycling depots) 	<ul style="list-style-type: none"> Air emissions in the form of dust may be generated when drop-off depots are unloaded 	<ul style="list-style-type: none"> Maintain area around depots to eliminate debris, litter and other materials which may generate dust 	<ul style="list-style-type: none"> Potential for dust emissions to atmosphere is reduced but not eliminated. No effects expected as a result of dust emissions

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Leaf and Yard Waste Collection</u> <ul style="list-style-type: none"> • Seasonal curbside collection of leaf and yard waste • Drop-off depot for leaf and yard waste (depots located at landfill and other convenient sites) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular sweeping of municipal streets to collect dust generating materials • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced but not eliminated. Dust and exhaust emissions are still expected
<u>Residential Household Composting</u> <ul style="list-style-type: none"> • Door-to-door distribution of backyard composters to 80% of single family households • Large 3-bin composting units distributed to apartment and cooperative housing complexes • Promotion of vermicomposting to multi-family units • Promotion of community composting 	<ul style="list-style-type: none"> • Odours may be released to atmosphere by compost units 	<ul style="list-style-type: none"> • Operate and maintain compost unit as per instructions or as necessary to achieve proper conditions such that compost does not emit odours 	<ul style="list-style-type: none"> • Some odours may be emitted but no effects to the atmosphere are expected due to anticipated low emission levels

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>Other Residential Waste Diversion</u> (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off)</p> <ul style="list-style-type: none"> • Special curbside collections of Christmas trees • Special and weekly curbside collections of white goods • Drop-off depots for white goods • Special curbside collection for bulky items (furniture) • Permanent drop-off depot for household hazardous waste (HHW) • Special household hazardous waste drop-off days (one per year, one per month, etc.) • Toxic Taxi service for collection of large quantities of HHW at the household • Mobile HHW depots 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere • Grinding or mulching of Christmas trees as part of collection may result in release of dust to the atmosphere • Odours and harmful gases may be emitted from HHW collected due to the integrity of packaging or as a result of accidents (e.g. spills, leaks, vehicle upset). This may result in effects to the atmosphere 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles along streets • Regular sweeping of municipal streets to collect materials which may generate dust • Regular vehicle maintenance • Cover trucks collecting mulched trees to prevent release of dust and particulate • Design permanent HHW depot with features (e.g. air exchange and filter) to collect harmful air emissions to prevent effects and the release of gases to the atmosphere • Provide staff working with HHW with appropriate safety equipment and training • Develop contingency measures for spills and emergency response (including staff training and equipment) in the event of accidents to contain and restrict the release of harmful gas emissions to the atmosphere 	<ul style="list-style-type: none"> • Potential for release of dust and exhaust to the atmosphere by collection vehicles is reduced but not eliminated • Potential for dust or particles due to mulching and collecting Christmas trees is reduced but not eliminated • Release of harmful air emissions is contained inside permanent HHW depot • Potential for effects health is reduced with use of safety equipment and training, but not eliminated

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
Composting Facilities <ul style="list-style-type: none"> • Centralized windrow composting of leaf and yard waste • New mixed waste processing and composting facility 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from processing and compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Potential for effects are greater at mixed waste facility due to nature of feedstock and handling of waste required. 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of processing and compost facilities such as maintaining aerobic conditions and limited storage of putrescible feedstocks before processing and composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) • Provide equipment to individual staff to restrict or prevent exposure to dust, bioaerosols and VOCs (e.g. respirator) • Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from processing and composting. Effects may result due to nature of mixed waste feedstock

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Reuse Centres and Activities</u>	<ul style="list-style-type: none"> • Municipal reuse centre • Private reuse centre (e.g. Re-Uze, Scarborough) • Non-profit reuse centre (Wastewise, Halton) • Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) • Food reuse organization such as Second Harvest) • Special goods exchange days 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required
<u>MRFs</u>	<ul style="list-style-type: none"> • Processing centres (MRFs) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector • Construct new MRF and expand existing MRF(s) to process larger stream of dry recyclables 	<ul style="list-style-type: none"> • Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> • Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire MRF • Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) • Daily cleaning of facility equipment and floors

TABLE B6.5
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>Residential Promotion and Education</u> <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • Promotion/education program on source reduction/pre-cycling, reuse and recycling 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

SCHEDULE C

3Rs System Descriptions

1. INTRODUCTION

The residential 3Rs system descriptions by Region are presented in the following order:

Durham Region	-	Table C.1
Metro Toronto	-	Table C.2
York Region	-	Table C.3
Peel Region	-	Table C.4

The IC&I 3Rs system descriptions for the GTA are presented in Table C.5.

Components italicized in the Existing and Existing/Committed systems are those components which must be added to provide the same level of 3Rs service throughout the study period (to accommodate projected population increases). Components italicized in Systems 3 to 6, are the components which have been added to the Existing/Committed system which is the base for systems development.

TABLE C.1
REGION OF DURHAM
RESIDENTIAL SYSTEM COMPONENTS

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities <i>Direct cost system for garbage collection</i> Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection <ul style="list-style-type: none"> <i>Curbside collection of residential waste from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities</i> <i>Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors where feasible</i> Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Self haul of waste to landfills and transfer stations by residents 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads

TABLE C.1
REGION OF DURHAM
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings. Materials include ONP, OMG, telephone directories, OCC, PET, HDPE, glass, ferrous, aluminum Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations</i> <i>Curbside collection of additional dry materials</i> <i>Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations)</i> Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations <i>Curbside collection of increased quantities of dry materials following implementation of Direct Cost system for garbage collection</i> Recycling services at all multi-family buildings with 6 or more units Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Curbside collection of Expanded Blue Box materials including plastics, (PET, rigid plastic, bottles & tubes , film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units</i> <i>Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units</i> <i>Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Provide carts to all single family households</i> <i>Separation of waste into three streams (wet, dry, and garbage) by the householder</i> <i>Expanded set of dry materials to be collected, including plastics, (PET, rigid plastic, bottles & tubes , film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services at all multi-family buildings with 6 or more units</i> <i>Large bins provided in the garbage management area of multi-family buildings. Residents will be encouraged to separate their waste into three separate bags</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Curbside collection of additional dry materials Recycling services at all multi-family buildings with 6 or more units Collection of bins of recyclables from multi-family units

TABLE C.1
REGION OF DURHAM
RESIDENTIAL SYSTEM COMPONENTS.
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Drop-off depots for recyclables (scrap metal, batteries, brush, drywall, HHW, tires, OCC and textiles) Depots located at transfer stations to provide recycling opportunities to self-haul generators 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Drop-off depots for recyclables (scrap metal, batteries, brush, drywall, HHW, tires, OCC and textiles) Depots located at transfer stations to provide recycling opportunities to self-haul generators 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Drop-off depots for recyclables (scrap metal, batteries, brush, drywall, HHW, tires, OCC and textiles) Depots located at transfer stations to provide recycling opportunities to self-haul generators 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> <i>Drop-off depots for multi-family residents not serviced by recycling (collecting all Expanded Blue Box materials)</i> <i>Drop-off depot for rural households (collecting all Expanded Blue Box materials)</i> Drop-off depots for recyclables (scrap metal, batteries, brush, drywall, HHW, tires, OCC and textiles) Depots located at transfer stations to provide recycling opportunities to self-haul generators 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Drop-off depots for recyclables (scrap metal, batteries, brush, drywall, HHW, tires, OCC and textiles) Depots located at transfer stations to provide recycling opportunities to self-haul generators 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Drop-off depots for recyclables (scrap metal, batteries, brush, drywall, HHW, tires, OCC and textiles) Depots located at transfer stations to provide recycling opportunities to self-haul generators
Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depots for leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depots for leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depots for leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depots for leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> <i>Collection of leaf and yard waste as part of three stream pick-up</i> <i>Separate brush collection</i> Drop-off depots for leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depots for leaf and yard waste
Residential Household Composting <ul style="list-style-type: none"> Backyard composter distribution programs (22,450 composters by end of 1992) Limited community composting Limited vermicomposting 4,000 planned (cap budget) 	Residential Household Composting <ul style="list-style-type: none"> Backyard composter distribution programs (26,450 composters by end of 1992) Limited community composting Limited vermicomposting 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i>

TABLE C.1
REGION OF DURHAM
RESIDENTIAL SYSTEM COMPONENTS
(continued)

TABLE C.1
REGION OF DURHAM
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
MRFs <ul style="list-style-type: none"> One processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/ institutional) sector. Owned by the municipality and operated by municipal staff <i>Construct new MRF to handle 20-year requirements</i> <i>Close existing MRF when new MRF constructed</i> 	MRFs <ul style="list-style-type: none"> One processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/ institutional) sector. Owned by the municipality and operated by municipal staff Improvements/expansion to the existing regional MRF <i>Construct new MRF to handle 20-year requirements</i> <i>Close existing MRF when new MRF constructed</i> 	MRFs <ul style="list-style-type: none"> One processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/ institutional) sector. Owned by the municipality and operated by municipal staff <i>Construct new MRF, to process larger stream of dry recyclables</i> <i>Close existing MRF when new MRF constructed</i> 	MRFs <ul style="list-style-type: none"> One processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/ institutional) sector. Owned by the municipality and operated by municipal staff <i>Construct new MRF, to process larger stream of dry recyclables</i> <i>Close existing MRF when new MRF constructed</i> 	MRFs <ul style="list-style-type: none"> Processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/ institutional) sector. Owned by the municipality and operated by municipal or contractors' staff <i>Construct new MRF, to process larger dry stream of recyclables</i> <i>Close existing MRF when new MRF constructed</i> 	MRFs <ul style="list-style-type: none"> One processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/ institutional) sector. Owned by the municipality and operated by municipal staff <i>Construct new MRF to process larger stream of dry recyclables</i> <i>Close existing MRF when new MRF constructed</i>
Residential Promotion and Education <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector, including home composting video Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. 	Residential Promotion and Education <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector, including home composting video Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. 	Residential Promotion and Education <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector, including home composting video Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>3Rs promotion and education program, focused on source reduction, pre-cycling, reuse and recycling</i> <i>Promotion/education program on direct cost system</i> 	Residential Promotion and Education <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector, including home composting video Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>3Rs promotion and education program, focused on source reduction, pre-cycling, reuse and recycling</i> <i>Promotion/education program on Expanded Blue Box program</i> 	Residential Promotion and Education <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector, including home composting video Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>3Rs promotion and education program, focused on source reduction, pre-cycling, reuse and recycling</i> <i>Promotion/education program for wet/dry system</i> 	Residential Promotion and Education <ul style="list-style-type: none"> 3Rs promotion and education program, focused on the residential sector, including home composting video Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>3Rs promotion and education program, focused on source reduction, pre-cycling, reuse and recycling</i>

TABLE C.2
METRO TORONTO
RESIDENTIAL SYSTEM COMPONENTS

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by municipal forces or private contractors Self-haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by municipal forces or private contractors Self-haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by municipal forces or private contractors <i>Direct cost system for garbage collection from households currently serviced by municipal forces</i> Self-haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by municipal forces or private contractors Self-haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> <i>Curbside collection of residential waste from single family dwellings in three streams by specially designed trucks</i> <i>Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible</i> Self-haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by municipal forces or private contractors Self-haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads

TABLE C.2
METRO TORONTO
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings and some apartment buildings. Typical materials include ONP, OCC, telephone directories, magazines, PET, HDPE, glass, ferrous, aluminum Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations</i> <i>Curbside collection of additional dry materials</i> <i>Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations)</i> Collection of bins of recyclables from multi-family units <i>Some additional recycling service to multi-family units</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Curbside collection of additional dry materials Recycling services at all multi-family buildings with 6 or more units Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Curbside collection of Expanded Blue Box materials including plastics, (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units</i> <i>Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units</i> <i>Collection of bins of recyclables (collecting all expanded blue box materials) from multi-family units</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Provide carts to all single family</i> <i>Separation of waste into three streams (wet, dry and garbage) by the householder</i> <i>Expanded set of dry materials to be collected, including plastics, (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services at all multi-family buildings with 6 or more units</i> <i>Large bins provided in the garbage management area of multi-family buildings, where space permits. Residents will be encouraged to separate their waste into three separate bags</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Curbside collection of additional dry materials Recycling services at all multi-family buildings with 6 or more units Collection of bins of recyclables from multi-family units Some additional recycling service to multi-family units

TABLE C.2
METRO TORONTO
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at landfills Depots located at transfer stations to provide recycling opportunities to self-haul generators Igloos and domes provide opportunities to recycle in public areas Drop-off depots for multi-family residents not serviced by recycling Depots for voluntary recycling by residents (e.g. Scarborough) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at landfills Depots located at transfer stations to provide recycling opportunities to self-haul generators Igloos and domes provide opportunities to recycle in public areas Drop-off depots for multi-family residents not serviced by recycling Depots for voluntary recycling by residents (e.g. Scarborough) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at landfills Depots located at transfer stations to provide recycling opportunities to self-haul generators Igloos and domes provide opportunities to recycle in public areas Drop-off depots for multi-family residents not serviced by recycling Depots for voluntary recycling by residents (e.g. Scarborough) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at landfills Depots located at transfer stations to provide recycling opportunities to self-haul generators (<i>collecting all Expanded Blue Box materials</i>) Igloos and domes provide opportunities to recycle in public areas <i>Drop-off depots for multi-family residents not serviced by recycling, for full range of Expanded Blue Box materials</i> Depots for voluntary recycling by residents (e.g. Scarborough) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at landfills Depots located at transfer stations to provide recycling opportunities to self-haul generators (<i>collecting all Expanded Blue Box materials</i>) Igloos and domes provide opportunities to recycle in public areas Drop-off depots for multi-family residents not serviced by recycling Depots for voluntary recycling by residents (e.g. Scarborough) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at landfills Depots located at transfer stations to provide recycling opportunities to self-haul generators Igloos and domes provide opportunities to recycle in public areas Drop-off depots for multi-family residents not serviced by recycling Depots for voluntary recycling by residents (e.g. Scarborough)
Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste <i>New leaf and yard waste bunkers at transfer stations (1994 capital budget)</i> 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste <i>New leaf and yard waste bunkers at transfer stations (1994 capital budget)</i> 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> <i>Collection of leaf and yard waste as part of three stream pick-up</i> <i>Separate brush collection</i> <i>New leaf and yard waste bunkers at transfer stations (1994 capital budget)</i> 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste <i>New leaf and yard waste bunkers at transfer stations (1994 capital budget)</i>

TABLE C.2
METRO TORONTO
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Household Composting	Residential Household Composting	Residential Household Composting	Residential Household Composting	Residential Household Composting	Residential Household Composting
<ul style="list-style-type: none"> Backyard composter distribution programs (105,000 units to date) Sale of 3-bin units to some multi-family dwellings at \$150 each (25 units by end of 1992) Limited community composting Limited vermicomposting 	<ul style="list-style-type: none"> Backyard composter distribution programs (105,000 units to date) <i>Distribution of an additional 15,000 to 20,000 backyard composters, to bring the total distributed by Metro to between 120,000 and 125,000</i> Sale of 3-bin units to some multi-family dwellings at \$150 each (25 units by end of 1992) Additional community composting Additional vermicomposting 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes on a voluntary basis</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i>
Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods, etc.)
<ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods Drop-off depots for white goods Ten (10) permanent drop-off depots for HHW (8 in Metro, 1 at Keele Valley Landfill, one at Brock Road West landfill.) Two Toxic Taxis 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods Drop-off depots for white goods Ten (10) permanent drop-off depots for HHW (8 in Metro, 1 at Keele Valley Landfill, one at Brock Road West landfill.) Two Toxic Taxis 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods Drop-off depots for white goods Ten (10) permanent drop-off depots for HHW (8 in Metro, 1 at Keele Valley Landfill, one at Brock Road West landfill.) Two Toxic Taxis 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods Drop-off depots for white goods Ten (10) permanent drop-off depots for HHW (8 in Metro, 1 at Keele Valley Landfill, one at Brock Road West landfill.) Two Toxic Taxis 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods Drop-off depots for white goods Ten (10) permanent drop-off depots for HHW (8 in Metro, 1 at Keele Valley Landfill, one at Brock Road West landfill.) Two Toxic Taxis 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods Drop-off depots for white goods Ten (10) permanent drop-off depots for HHW (8 in Metro, 1 at Keele Valley Landfill, one at Brock Road West landfill.) Two Toxic Taxis

TABLE C.2
METRO TORONTO
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste in North York (3 sites), Scarborough (1 site), Etobicoke (1 site), and at Keele Valley (Metro operated Avondale Site) 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste in North York (3 sites), Scarborough (1 site), Etobicoke (1 site), and at Keele Valley (Metro operated Avondale Site) 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste in North York (3 sites), Scarborough (1 site), Etobicoke (1 site), and at Keele Valley (Metro operated Avondale Site) 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste in North York (3 sites), Scarborough (1 site), Etobicoke (1 site), and at Keele Valley (Metro operated Avondale Site) 	Composting Facilities <ul style="list-style-type: none"> Existing centralized windrow leaf and yard waste composting facilities may be closed <i>One new central composting facility (in-vessel) with a capacity to process all household organics and leaf and yard wastes</i> 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste in North York (3 sites), Scarborough (1 site), Etobicoke (1 site), and at Keele Valley (Metro operated Avondale Site) <i>Two new mixed waste processing and composting facilities</i>
Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Re-Uze Centre in Scarborough 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Re-Uze Centre in Scarborough 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Re-Uze Centre in Scarborough 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Re-Uze Centre in Scarborough 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Re-Uze Centre in Scarborough 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) Re-Uze Centre in Scarborough
MRFs <ul style="list-style-type: none"> QUNO MRF on Commissioners Street, which processed fibres and container materials under contract to Metro in 1992. Operation changed in 1993 to process fibres only CRinc MRF on Commissioners Street, which started operation in May 1992. It processes only container materials (plastic, metals, and glass). The facility is owned by Metro, and is operated under contract by CRinc Dufferin Street MRF is owned by Metro and operated by QUNO <i>One new MRF for processing dry recyclables to meet 20 year requirements</i> 	MRFs <ul style="list-style-type: none"> QUNO MRF on Commissioners Street, which processes fibres CRinc MRF on Commissioners Street processes container materials (plastic, metals, and glass). The facility is owned by Metro, and is operated under contract by CRinc. Dufferin Street MRF is owned by Metro and operated by QUNO <i>One new MRF for processing dry recyclables to meet 20 year requirements</i> 	MRFs <ul style="list-style-type: none"> QUNO MRF on Commissioners Street, which processes fibres CRinc MRF on Commissioners Street processes container materials (plastic, metals, and glass). The facility is owned by Metro, and is operated under contract by CRinc. Dufferin Street MRF is owned by Metro and operated by QUNO <i>One new MRF for processing dry recyclables to meet 20 year requirements</i> 	MRFs <ul style="list-style-type: none"> QUNO MRF on Commissioners Street, which processes fibres CRinc MRF on Commissioners Street processes container materials (plastic, metals, and glass). The facility is owned by Metro, and is operated under contract by CRinc. Dufferin Street MRF is owned by Metro and operated by QUNO <i>One new MRF for processing dry recyclables to meet 20 year requirements</i> 	MRFs <ul style="list-style-type: none"> QUNO MRF on Commissioners Street, which processes fibres CRinc MRF on Commissioners Street processes container materials (plastic, metals, and glass). The facility is owned by Metro, and is operated under contract by CRinc. Dufferin Street MRF is owned by Metro and operated by QUNO <i>One new MRF for processing dry recyclables to meet 20 year requirements</i> 	MRFs <ul style="list-style-type: none"> QUNO MRF on Commissioners Street, which processes fibres CRinc MRF on Commissioners Street processes container materials (plastic, metals, and glass). The facility is owned by Metro, and is operated under contract by CRinc. Dufferin Street MRF is owned by Metro and operated by QUNO <i>One new MRF for processing dry recyclables to meet 20 year requirements</i>

TABLE C.2
METRO TORONTO
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Promotion and Education <ul style="list-style-type: none"> Extensive promotion and education campaign on composting by the residential sector, which includes the Master Composter program operated for Metro by RCO, a compost information hotline, radio and newspaper advertisements, and backyard composting manuals in many languages Extensive 3Rs promotion and education program, focused on the residential sector, which includes publishing "Your Guide to Reduction and Recycling in Metropolitan Toronto" Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. 	Residential Promotion and Education <ul style="list-style-type: none"> Extensive promotion and education campaign on composting by the residential sector, which includes the Master Composter program operated for Metro by RCO, a compost information hotline, radio and newspaper advertisements, and backyard composting manuals in many languages Extensive 3Rs promotion and education program, focused on the residential sector, which includes publishing "Your Guide to Reduction and Recycling in Metropolitan Toronto" Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>Promotion/education on Direct Cost program</i> <i>Promotion/education program on source reduction, pre-cycling, composting, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> Extensive promotion and education campaign on composting by the residential sector, which includes the Master Composter program operated for Metro by RCO, a compost information hotline, radio and newspaper advertisements, and backyard composting manuals in many languages Extensive 3Rs promotion and education program, focused on the residential sector, which includes publishing "Your Guide to Reduction and Recycling in Metropolitan Toronto" Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>Promotion/education on Expanded Blue Box program</i> <i>Promotion/education program on source reduction, pre-cycling, composting, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> Extensive promotion and education campaign on composting by the residential sector, which includes the Master Composter program operated for Metro by RCO, a compost information hotline, radio and newspaper advertisements, and backyard composting manuals in many languages Extensive 3Rs promotion and education program, focused on the residential sector, which includes publishing "Your Guide to Reduction and Recycling in Metropolitan Toronto" Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>Promotion/education for Wet/Dry system</i> <i>Promotion/education for source reduction, pre-cycling, composting, reuse, and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> Extensive promotion and education campaign on composting by the residential sector, which includes the Master Composter program operated for Metro by RCO, a compost information hotline, radio and newspaper advertisements, and backyard composting manuals in many languages Extensive 3Rs promotion and education program, focused on the residential sector, which includes publishing "Your Guide to Reduction and Recycling in Metropolitan Toronto" Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements etc. <i>Promotion/education for source reduction, pre-cycling, composting, reuse and recycling</i> 	

TABLE C3
YORK REGION
RESIDENTIAL SYSTEM COMPONENTS

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Limit on number of bags/containers set-out for garbage collection (King City) 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Limit on number of bags/containers set-out for garbage collection 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings <i>Direct cost system for garbage collection</i> Collection of residential garbage from multi-family units by private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Limit on number of bags/containers set-out for garbage collection 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Limit on number of bags/containers set-out for garbage collection 	Garbage Collection <ul style="list-style-type: none"> <i>Curbside collection of residential waste from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities</i> <i>Collection of residential garbage from multi-family units in three streams by municipal forces or private contractors, where feasible</i> Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Limit on number of bags/containers set-out for garbage collection 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings Collection of residential garbage from multi-family units by private contractors Self haul of waste to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads Limit on number of bags/containers set-out for garbage collection

TABLE C.3
YORK REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of dry recyclables by municipal forces or private contractors Materials collected by different municipalities include: ONP, glass, steel, aluminum, PET, OCC, telephone directories, HDPE, rigid and other plastics Assume collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Curbside collection of dry recyclables by municipal forces or private contractors</i> <i>Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations</i> <i>Curbside collection of additional dry materials</i> <i>Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations)</i> <i>Collection of bins of recyclables from multi-family units</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of dry recyclables by municipal forces or private contractors Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Curbside collection of additional dry materials Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Curbside collection of Expanded Blue Box materials including plastics, (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units</i> <i>Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Provide carts to all single family households and some "other" households</i> <i>Separation of waste into three streams (wet, dry, and garbage) by the householder</i> <i>Expanded set of dry materials to be collected, including plastics, (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations)</i> <i>Large bins provided in the garbage management area of multi-family buildings if space permits. Residents will be encouraged to separate their waste into three separate bags</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> Expansion of curbside collection of Blue Box materials from single family dwellings in some municipalities to include all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Curbside collection of additional dry materials Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) Collection of bins of recyclables from multi-family units
Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Assume drop-off depots for multi-family residents not serviced by recycling Assume drop-off depot for rural households Depot at Markham for boxboard, mixed paper, scrap metal and tires, in addition to Blue Box materials 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> <i>Drop-off depots for multi-family residents not serviced by recycling</i> <i>Some additional recycling service to multi-family units</i> <i>Some additional recycling at new depots</i> <i>Depot at Markham for boxboard, mixed paper, scrap metal and tires, in addition to Blue Box materials</i> 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Some additional recycling service to multi-family units Some additional recycling at new depots Depot at Markham for boxboard, mixed paper, scrap metal and tires, in addition to Blue Box materials 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> <i>Drop-off depots for multi-family residents not serviced by recycling (collecting all Expanded Blue Box materials)</i> <i>Drop-off depot for rural households (collecting all Expanded Blue Box materials)</i> <i>Depot at Markham for boxboard, mixed paper, scrap metal and tires, in addition to Blue Box materials</i> 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Drop-off depot for rural households Depot at Markham for boxboard, mixed paper, scrap metal and tires, in addition to Blue Box materials 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depots for multi-family residents not serviced by recycling Some additional recycling service to multi-family units Some additional recycling at new depots Depot at Markham for boxboard, mixed paper, scrap metal and tires, in addition to Blue Box materials

TABLE C.3
YORK REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste at regions composting site - no charge to residents 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste at regions composting site - no charge to residents 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste at regions composting site - no charge to residents 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste at regions composting site - no charge to residents 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> <i>Collection of leaf and yard waste as part of three stream pick-up</i> <i>Separate brush collection</i> 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste Drop-off depot for leaf and yard waste at regions composting site - no charge to residents
Residential Household Composting <ul style="list-style-type: none"> Backyard composter distribution programs (29,050 composters by end of 1992) Limited community composting Limited vermicomposting 	Residential Household Composting <ul style="list-style-type: none"> Backyard composter distribution programs (29,050 composters by end of 1992) Distribution of additional backyard composters by individual municipalities Additional community composting Additional vermicomposting 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Promotion of large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Promotion of large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	Residential Household Composting <ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Promotion of large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i>
Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods in all municipalities - frequency varies Drop-off depots for white goods (King Township) Mobile HHW depots HHW collection days (some municipalities) 	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods in all municipalities - frequency varies Drop-off depots for white goods (King Township) Mobile HHW depots HHW collection days (some municipalities) 	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods in all municipalities - frequency varies Drop-off depots for white goods (King Township) Mobile HHW depots HHW collection days (some municipalities) 	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods in all municipalities - frequency varies Drop-off depots for white goods (King Township) Mobile HHW depots HHW collection days (some municipalities) 	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods in all municipalities - frequency varies Drop-off depots for white goods (King Township) Mobile HHW depots HHW collection days (some municipalities) 	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.) <ul style="list-style-type: none"> Special curbside collections of Christmas trees Curbside collection of white goods in all municipalities - frequency varies Drop-off depots for white goods (King Township) Mobile HHW depots HHW collection days (some municipalities)

TABLE C.3
YORK REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste (operated by Miller Waste Systems) 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste 	Composting Facilities <ul style="list-style-type: none"> Existing centralized windrow leaf and yard waste composting facilities may be closed <i>New central composting facility (in vessel) for composting of source separated household organics (wet stream) and leaf and yard waste</i> 	Composting Facilities <ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste <i>New mixed waste processing and composting facility</i>
Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days in Richmond Hill 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days in Richmond Hill 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days in Richmond Hill 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days in Richmond Hill 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days in Richmond Hill 	Reuse Centres and Activities <ul style="list-style-type: none"> Goods exchange days in Richmond Hill
MRFs <ul style="list-style-type: none"> Markham MRF owned by Markham but operated by Miller Waste Systems. Currently operating on a temporary basis (will be replaced by new regional facility that is being built). Processes ONP, container materials and other recyclables - 15,300 tonnes in 1992 Richmond Hill MRF operated by Miller - 8,400 tonnes processed in 1992. It too will be replaced by planned regional facility New MRF will be required to meet 20 year needs Existing MRFs will close when new MRF constructed 	MRFs <ul style="list-style-type: none"> New MRF will be required to meet 20 year needs Existing/committed MRF in capital budget (\$2.2 million) in operation in 1993 Other MRFs will close when new MRF constructed 	MRFs <ul style="list-style-type: none"> <i>One new Regional MRF for processing of dry recyclables</i> MRF in existing/committed system would close when new MRF operational 	MRFs <ul style="list-style-type: none"> <i>One new Regional MRF for processing of dry recyclables</i> MRF in existing/committed system would close when new MRF operational 	MRFs <ul style="list-style-type: none"> <i>One new Regional MRF for processing of dry recyclables</i> MRF in existing/committed system would close when new MRF operational 	MRFs <ul style="list-style-type: none"> One new Regional MRF for processing of dry recyclables MRF in existing/committed system would close when new MRF operational

TABLE C.3
YORK REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Promotion and Education <ul style="list-style-type: none"> Region only advertises HHW and leaf and yard waste programs. Other programs are left to the municipalities Municipalities conduct extensive promotion through advertising, brochures, hotline phone service and information flyers Richmond Hill and Markham conducted extensive door to door sales campaigns for composters with assistance from students. Markham also conducted a number of seminars for the general public and schools 	Residential Promotion and Education <ul style="list-style-type: none"> Region only advertises HHW and leaf and yard waste programs. Other programs are left to the municipalities Municipalities conduct extensive promotion through advertising, brochures, hotline phone service and information flyers Richmond Hill and Markham conducted extensive door to door sales campaigns for composters with assistance from students. Markham also conducted a number of seminars for the general public and schools 	Residential Promotion and Education <ul style="list-style-type: none"> Region only advertises HHW and leaf and yard waste programs. Other programs are left to the municipalities Municipalities conduct extensive promotion through advertising, brochures, hotline phone service and information flyers Richmond Hill and Markham conducted extensive door to door sales campaigns for composters with assistance from students. Markham also conducted a number of seminars for the general public and schools <i>Promotion/education program on direct cost system</i> <i>Promotion/education program on source reduction, pre-cycling, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> Region only advertises HHW and leaf and yard waste programs. Other programs are left to the municipalities Municipalities conduct extensive promotion through advertising, brochures, hotline phone service and information flyers Richmond Hill and Markham conducted extensive door to door sales campaigns for composters with assistance from students. Markham also conducted a number of seminars for the general public and schools <i>Promotion/education program on Expanded Blue Box program</i> <i>Promotion/education program on source reduction, pre-cycling, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> Region only advertises HHW and leaf and yard waste programs. Other programs are left to the municipalities Municipalities conduct extensive promotion through advertising, brochures, hotline phone service and information flyers Richmond Hill and Markham conducted extensive door to door sales campaigns for composters with assistance from students. Markham also conducted a number of seminars for the general public and schools <i>Promotion/education program for wet/dry system</i> <i>Promotion/education program for source reduction, pre-cycling, reuse, recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> Region only advertises HHW and leaf and yard waste programs. Other programs are left to the municipalities Municipalities conduct extensive promotion through advertising, brochures, hotline phone service and information flyers Richmond Hill and Markham conducted extensive door to door sales campaigns for composters with assistance from students. Markham also conducted a number of seminars for the general public and schools <i>Promotion/education program on source reduction, pre-cycling, reuse and recycling</i>

TABLE C.4
PEEL REGION
RESIDENTIAL SYSTEM COMPONENTS

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of garbage to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of garbage to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of garbage to landfills and transfer stations by residents <i>Direct cost system for garbage collection</i> Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of garbage to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection <ul style="list-style-type: none"> <i>Curbside collection of residential waste from single family dwellings in three streams by specially designed trucks by municipal forces or contractors to municipalities</i> <i>Collection of residential garbage from multi-family units in three streams, where feasible by municipal forces or private contractors</i> Self haul of garbage to landfills and transfer stations by residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads 	Garbage Collection and Disposal <ul style="list-style-type: none"> Curbside collection of residential garbage from single family dwellings by municipal forces or contractors to municipalities Collection of residential garbage from multi-family units by municipal forces or private contractors Self haul of garbage to landfills and transfer stations by rural residents Landfill bans on some items (e.g. recyclable materials, tires, white goods, etc.) with disposal surcharges and rejection of some loads

TABLE C.4
PEEL REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings and some apartment buildings. Typical materials include at least ONP, PET, glass, ferrous, aluminum (Caledon), these and telephone directories in Brampton Expanded curbside collection (Mississauga) to collect additional materials (HDPE, mixed plastic, textiles, OMG, OCC) Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Curbside collection of Blue Box materials from single family dwellings and some apartment buildings includes all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations</i> Expanded curbside collection (Mississauga) to collect additional materials (HDPE, mixed plastic, textiles, OMG, OCC) <i>Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations)</i> Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings and some apartment buildings includes all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Expanded curbside collection (Mississauga) to collect additional materials (HDPE, mixed plastic, textiles, OMG, OCC) Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) Collection of bins of recyclables from multi-family units 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Curbside collection of Expanded Blue Box materials including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid tray); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services for full range of Expanded Blue Box materials at all multi-family buildings with 6 or more units</i> <i>Collection of bins of recyclables (collecting all Expanded Blue Box materials) from multi-family units</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> <i>Provide carts to all single family and some "other" households</i> <i>Separation of waste into three streams (wet, dry and garbage) by the householder</i> <i>Expanded set of dry materials to be collected, including plastics (PET, rigid plastic, bottles & tubes, film plastic, foam plastic and rigid trays); paper fibre (ONP, OCC, boxboard, polycoat, phone books, magazines and catalogues and mixed household paper); metal (steel and aluminum cans, aluminum trays and foil), clear and coloured glass and textiles</i> <i>Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations)</i> <i>Large bins provided in the garbage management area of multi-family buildings, where space available. Residents will be encouraged to separate their waste into three separate bags</i> 	Residential Recycling and Collection <ul style="list-style-type: none"> Curbside collection of Blue Box materials from single family dwellings and some apartment buildings includes all materials designated basic Blue Box waste and at least two materials designated as supplementary Blue Box waste in the 3Rs Regulations Expanded curbside collection (Mississauga) to collect additional materials (HDPE, mixed plastic, textiles, OMG, OCC) Recycling services at all multi-family buildings with 6 or more units (3Rs Regulations) Collection of bins of recyclables from multi-family units

TABLE C.4
PEEL REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at Britannia landfill Depots located at transfer stations to provide recycling opportunities to self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depots for rural households 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at Britannia landfill Depots located at transfer stations to provide recycling opportunities to self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depots for rural households 7 community recycling centres: 3 in Mississauga, 2 in Brampton, and 2 in Caledon, to accept recyclables, household hazardous waste, reusable items and residential waste Construction of satellite drop-off facilities for recycling (Neighbourhood Recycling Depots and Mini Recycling Depots) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at Britannia landfill Depots located at transfer stations to provide recycling opportunities to self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depots for rural households 7 community recycling centres: 3 in Mississauga, 2 in Brampton, and 2 in Caledon, to accept recyclables, household hazardous waste, reusable items and residential waste Construction of satellite drop-off facilities for recycling (Neighbourhood Recycling Depots and Mini Recycling Depots) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at Britannia landfill Depots located at transfer stations to provide recycling opportunities to self-haul generators Drop-off depots for multi-family residents not serviced by recycling, for full range of Expanded Blue Box materials Drop-off depots for rural households (collecting all Expanded Blue Box materials) 7 community recycling centres: 3 in Mississauga, 2 in Brampton, and 2 in Caledon, to accept recyclables, household hazardous waste, reusable items and residential waste Construction of satellite drop-off facilities for recycling (Neighbourhood Recycling Depots and Mini Recycling Depots) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at Britannia landfill Depots located at compost facility to provide recycling opportunities to self-haul generators Drop-off depots for multi-family residents not serviced by recycling Drop-off depots for rural households 7 community recycling centres: 3 in Mississauga, 2 in Brampton, and 2 in Caledon, to accept recyclables, household hazardous waste, reusable items and residential waste Construction of satellite drop-off facilities for recycling (Neighbourhood Recycling Depots and Mini Recycling Depots) 	Residential Recycling Depots and Transfer Stations <ul style="list-style-type: none"> Drop-off depot for dry recyclables (including all banned materials) at Britannia landfill Depots located at transfer stations to provide recycling opportunities to self-haul generators 7 community recycling centres: 3 in Mississauga, 2 in Brampton, and 2 in Caledon, to accept recyclables, household hazardous waste, reusable items and residential waste Construction of satellite drop-off facilities for recycling (Neighbourhood Recycling Depots and Mini Recycling Depots)
Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Limited seasonal curbside collection of leaf and yard waste 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste May be some drop-off depots for leaf and yard waste (3Rs Regulations) 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste May be some drop-off depots for leaf and yard waste (3Rs Regulations) 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste May be some drop-off depots for leaf and yard waste (3Rs Regulations) 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Collection of leaf and yard waste as part of three stream pick-up Separate brush collection May be some drop-off depots for leaf and yard waste (3Rs Regulations) 	Residential Leaf and Yard Waste Collection <ul style="list-style-type: none"> Seasonal curbside collection of leaf and yard waste May be some drop-off depots for leaf and yard waste (3Rs Regulations)

TABLE C.4
PEEL REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Household Composting	Residential Household Composting	Residential Household Composting	Residential Household Composting	Residential Household Composting	Residential Household Composting
<ul style="list-style-type: none"> Backyard composter distribution programs (56,839 units to end of 1992) Limited community composting Limited vermicomposting 	<ul style="list-style-type: none"> Backyard composter distribution programs (56,839 units to end of 1992) Backyard composters to be used in 68,839 single family households, an addition of 12,000 to existing system Additional community composting Additional vermicomposting 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i> 	<ul style="list-style-type: none"> <i>Door to door distribution of backyard composters to 80% of single family households</i> <i>Large 3-bin composting units distributed to apartment and co-operative housing complexes</i> <i>Promotion of vermicomposting to multi-family units</i> <i>Promotion of community composting</i>
Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)	Other Residential Waste Diversion (HHW, Toxic Taxi, White Goods Collection, White Goods Drop-Off etc.)
<ul style="list-style-type: none"> Special curbside collections of Christmas trees Special curbside collections of white goods Drop-off depots for white goods Once a year HHW collection at Bolton Community Centre Permanent drop-off depot for HHW at the Britannia Road landfill 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Special curbside collections of white goods Drop-off depots for white goods Once a year HHW collection at Bolton Community Centre Permanent drop-off depot for HHW at the Britannia Road landfill 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees following the Christmas season Special curbside collections of white goods Drop-off depots for white goods Once a year HHW collection at Bolton Community Centre Permanent drop-off depot for HHW at the Britannia Road landfill 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Special curbside collections of white goods Drop-off depots for white goods Once a year HHW collection at Bolton Community Centre Permanent drop-off depot for HHW at the Britannia Road landfill 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees following the Christmas season Special curbside collections of white goods Drop-off depots for white goods Once a year HHW collection at Bolton Community Centre Permanent drop-off depot for HHW at the Britannia Road landfill 	<ul style="list-style-type: none"> Special curbside collections of Christmas trees Special curbside collections of white goods Drop-off depots for white goods Once a year HHW collection at Bolton Community Centre Permanent drop-off depot for HHW at the Britannia Road landfill
Composting Facilities	Composting Facilities	Composting Facilities	Composting Facilities	Composting Facilities	Composting Facilities
<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste (at Brampton site, Britannia Road landfill and Caledon landfill) 	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste (at Brampton site, Britannia Road landfill and Caledon landfill) 	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste (at Brampton site, Britannia Road landfill and Caledon landfill) 	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste (at Brampton site, Britannia Road landfill and Caledon landfill) 	<ul style="list-style-type: none"> Existing centralized windrow leaf and yard waste composting facilities may be closed <i>Central composting facilities (in vessel) for composting of source separated household organics (wet stream) and leaf and yard waste</i> 	<ul style="list-style-type: none"> Centralized windrow composting of leaf and yard waste (at Brampton site, Britannia Road landfill and Caledon landfill) <i>New mixed waste processing and composting facility</i>

TABLE C.4
PEEL REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Reuse Centres and Activities <ul style="list-style-type: none"> Municipal reuse centre (Caledon Landfill scavenging centre, Albion & Brampton goods exchanges) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) 	Reuse Centres and Activities <ul style="list-style-type: none"> Municipal reuse centre (Caledon Landfill scavenging centre, Albion & Brampton goods exchanges) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) 	Reuse Centres and Activities <ul style="list-style-type: none"> Municipal reuse centre (Caledon Landfill scavenging centre, Albion & Brampton goods exchanges) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) 	Reuse Centres and Activities <ul style="list-style-type: none"> Municipal reuse centre (Caledon Landfill scavenging centre, Albion & Brampton goods exchanges) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) 	Reuse Centres and Activities <ul style="list-style-type: none"> Municipal reuse centre (Caledon Landfill scavenging centre, Albion & Brampton goods exchanges) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest) 	Reuse Centres and Activities <ul style="list-style-type: none"> Municipal reuse centre (Caledon Landfill scavenging centre, Albion & Brampton goods exchanges) Charitable reuse centres run by social service organizations (Goodwill, Salvation Army, etc.) Food reuse organization (such as Second Harvest)
MRFs <ul style="list-style-type: none"> Mississauga processing centre (MRF) for dry recyclables collected from the residential (and minor amounts from the commercial/institutional) sector in Mississauga and Brampton. Owned and operated by Laidlaw under contract to the Region MRF/Transfer Station in Bolton for Caledon material <i>One new Regional MRF for processing of dry recyclables (to meet 20 year requirement)</i> 	MRFs <ul style="list-style-type: none"> Laidlaw MRF will remain open but will not be part of the residential system MRF/Transfer Station in Bolton for Caledon material <i>One new Regional MRF for processing of dry recyclables (to meet 20 year requirement)</i> 	MRFs <ul style="list-style-type: none"> Laidlaw MRF will remain open but will not be part of the residential system MRF/Transfer Station in Bolton for Caledon material <i>One new Regional MRF for processing of dry recyclables (to meet 20 year requirement)</i> 	MRFs <ul style="list-style-type: none"> Laidlaw MRF will remain open but will not be part of the residential system MRF/Transfer Station in Bolton for Caledon material <i>One new Regional MRF for processing of dry recyclables (to meet 20 year requirement)</i> 	MRFs <ul style="list-style-type: none"> Laidlaw MRF will remain open but will not be part of the residential system MRF/Transfer Station in Bolton for Caledon material <i>One new Regional MRF for processing of dry recyclables (to meet 20 year requirement)</i> 	MRFs <ul style="list-style-type: none"> Laidlaw MRF will remain open but will not be part of the residential system MRF/Transfer Station in Bolton for Caledon material <i>One new Regional MRF for processing of dry recyclables (to meet 20 year requirement)</i>

TABLE C.4
PEEL REGION
RESIDENTIAL SYSTEM COMPONENTS
(continued)

System 1: Existing	System 2: Existing/Committed	System 3: Direct Cost	System 4: Expanded Blue Box	System 5: Wet/Dry	System 6: Mixed Waste Processing
Residential Promotion and Education <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	Residential Promotion and Education <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. 	Residential Promotion and Education <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • <i>Promotion/education on Direct Cost program</i> • <i>Promotion/education program on source reduction, pre-cycling, composting, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • <i>Promotion/education on Expanded Blue Box program</i> • <i>Promotion/education program on source reduction, pre-cycling, composting, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • <i>Promotion/education for wet/dry system</i> • <i>Promotion/education for source reduction, pre-cycling, composting, reuse and recycling</i> 	Residential Promotion and Education <ul style="list-style-type: none"> • 3Rs promotion and education program, focused on the residential sector • Consumer education program to reduce waste generation, includes videos, posters, calendars, pamphlets, advertisements, etc. • <i>Promotion/education for source reduction, pre-cycling, composting, reuse and recycling</i>

TABLE C.5
LIST OF IC&I SYSTEM COMPONENTS

GTA IC&I Systems	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 No Unprocessed Waste to Landfill
IC&I Collection - Dry Wastes	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) 	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Mandatory source separation of designated materials by major generators (3Rs Regulations) Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) 	<ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA (to capture generators of 90% of total IC&I waste - revisions to 3Rs Regulations) Voluntary source separation of dry recyclables by small IC&I generators Community recycling centres for use by small quantity IC&I generators Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) 	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some small IC&I generators Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some small IC&I generators Mandatory source separation of designated materials by designated major generators (3Rs Regulations) Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some small IC&I generators Mandatory source separation of designated materials by designated major generators (3Rs Regulations) Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Community recycling centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper etc.) Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill)
IC&I Collection - Wet Wastes	<ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Mandatory source separation of wet wastes by designated IC&I generators (revision to 3Rs Regulations) Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes
IC&I Processing - Dry Wastes	<ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall etc.) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRF's Processing of IC&I sector recyclables in small private sector recyclers 	<ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRF's Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Additional processing capacity for dry recyclables required Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRF's Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Additional processing capacity for dry materials required Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRF's Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Additional processing capacity for dry recyclables Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRF's Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRF's Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling (new policy) Mandatory processing of all mixed wastes prior to landfilling (new policy) Additional facilities for processing dry recyclables Additional facilities for processing mixed wastes

TABLE C.5
LIST OF IC&I SYSTEM COMPONENTS
(continued)

GTA IC&I Systems	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 No Unprocessed Waste to Landfill
IC&I Processing - Wet Wastes	<ul style="list-style-type: none"> Centralized windrow composting of source-separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Centralized windrow composting of source-separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Centralized windrow composting of source-separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Centralized windrow composting of source-separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Centralized windrow composting of source-separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Centralized composting of IC&I organics in in-vessel system Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector <i>New composting facility (in-vessel) for IC&I organics</i> 	<ul style="list-style-type: none"> Centralized windrow composting of source-separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector <i>New composting facility (in-vessel) for IC&I organics</i>
IC&I Reuse	<ul style="list-style-type: none"> Reuse by IC&I generators, through the Canadian, Provincial and local waste exchange programs Community-based reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Refilling of IC&I containers and packaging (e.g. refillable bottles, refillable pails, drums, etc.) Use of re-usable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> Reuse by IC&I generators, through the Canadian, Provincial and local waste exchange programs Community-based reuse programs and community recycling centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Use of refillable containers (refillable bottles, refillable pails or drums, etc.) Use of re-usable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> Reuse by IC&I generators, through the Canadian, Provincial and local waste exchange programs Community-based reuse programs and community recycling centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Use of refillable containers (refillable bottles, refillable pails or drums) Use of re-usable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> Reuse by IC&I generators, through the Canadian, Provincial and local waste exchange programs Community-based reuse programs and community recycling centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption <i>Increased use of food wastes as animal feed</i> <i>Increased use of food waste for human consumption</i> <i>Increased landspreading of IC&I organics</i> Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) Use of re-usable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> Reuse by IC&I generators, through the Canadian, Provincial and local waste exchange programs Community-based reuse programs and community recycling centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption <i>Increased use of food wastes as animal feed</i> <i>Increased use of food waste for human consumption</i> <i>Increased landspreading of IC&I organics</i> Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) Use of re-usable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> Reuse by IC&I generators, through the Canadian, Provincial and local waste exchange programs Community-based reuse programs and community recycling centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption <i>Increased use of food wastes as animal feed</i> <i>Increased use of food waste for human consumption</i> <i>Increased landspreading of IC&I organics</i> Use of refillable containers (refillable bottles, refillable pails or drums, etc.) Use of re-usable packaging (e.g. reusable plastic and wood pallets)
IC&I Reduction	<ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse 	<ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by designated major IC&I generators (defined in 3Rs Regulations) Mandatory development of packaging reduction action plans by designated major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) Mandatory development of packaging reduction action plans by designated major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) Mandatory development of packaging reduction action plans by designated major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) Mandatory development of packaging reduction action plans by designated major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by designated major IC&I generators (defined in 3Rs Regulations) Mandatory development of packaging reduction action plans by designated major packaging generators (defined in 3Rs Regulations)
IC&I Programs	<ul style="list-style-type: none"> Voluntary waste audits performed by IC&I generators Independent voluntary waste reduction programs in private companies Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> Voluntary waste audits performed by IC&I generators Independent voluntary waste reduction programs in private companies Mandatory waste audits by designated major IC&I generators (3Rs Regulations) Mandatory packaging audits by designated major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in private companies <i>Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations)</i> Mandatory packaging audits by designated major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies <i>Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations)</i> Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies <i>Mandatory waste audits by most IC&I generators (defined in 3Rs Regulations)</i> Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies <i>Mandatory waste audits by most IC&I generators (defined in 3Rs Regulations)</i> Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP)

TABLE C.5
LIST OF IC&I SYSTEM COMPONENTS
(continued)

GTA IC&I Systems	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs Regulations with Organics	System 6 No Unprocessed Waste to Landfill
IC&I Promotion and Education	<ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations Promotion/education of IC&I waste reduction by associations Mandatory posting of waste reduction plans for review by employees by most IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations Promotion/education of IC&I waste reduction by associations <i>Mandatory posting of waste reduction plans for review by employees by most IC&I generators (revision to 3Rs Regulations)</i> 	<ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations Promotion/education of IC&I waste reduction by associations <i>Mandatory posting of waste reduction plans for review by employees by most IC&I generators (revision to 3Rs Regulations)</i> 	<ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations (e.g. RCO) Promotion/education of IC&I waste reduction by associations <i>Mandatory posting of waste reduction plans for review by employees by most IC&I generators (revision to 3Rs Regulations)</i> 	<ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations Promotion/education of IC&I waste reduction by associations <i>Mandatory posting of waste reduction plans for review by employees by most IC&I generators (revision to 3Rs Regulations)</i>

SCHEDULE D

Residential System Net Effects Tables

1. INTRODUCTION

The residential 3Rs system net effects tables are presented in the following order:

Durham Region	-	Tables D1.1 to D1.6
Metro Toronto Region	-	Tables D2.1 to D2.6
York Region	-	Tables D3.1 to D3.6
Peel Region	-	Tables D4.1 to D4.6

TABLE D1.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Potential for loss or removal of terrestrial systems and resources is minimized, since HHW depots are located at a landfill site or transfer station, through design features at the depots and by implementing contingency measures in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots. Effects are minimized due to the location of the depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D1.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from HHW depots and compost facility. Effects are minimized by design features to prevent discharges and through contingency measures Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF) <u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at HHW depots and compost facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		

TABLE D1.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D1.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D1.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots and central compost facility. The installation of design features and contingency measures minimizes the potential for effects Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process. 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D1.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D1.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF).
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to anticipated illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 	<ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to illegal dumping of wastes. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to anticipated illegal dumping of wastes is greater than for all other systems

TABLE D1.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots and central compost facility. The installation of design features and contingency measures, minimizes the potential for effects. Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process. 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities Promotion/education of Direct Cost and 3Rs programs and illegal dumping or littering by-law enforcement minimizes disruption effects due to anticipated illegal dumping of wastes but does not eliminate the potential effects 	<ul style="list-style-type: none"> Potential for disruption effects to aquatic systems and water resources due to illegal dumping of wastes. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to aquatic systems and water resources due to anticipated illegal dumping of wastes is greater than for all other systems

TABLE D1.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D1.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D1.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots and central compost facility. The installation of design features and contingency measures minimizes the potential for effects Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost and HHW facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D1.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D1.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and new central compost facility Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and new central compost facility. Effects are minimized by siting process for each facility Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and central compost facility)

TABLE D1.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facilities minimizing discharges to water resources 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots and new central compost facility. The installation of design features and contingency measures minimizes the potential for effects. Effects are also minimized by new in-vessel compost facility which replaces existing compost facility Potential for disruption to aquatic systems and water resources due to new MRF and central compost facility. Effects are minimized by siting process for each facility 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from central compost facilities is less than effects predicted from all other systems since a new in-vessel facility replaces the existing compost facility
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and new central compost facility, and installing facility design features at new compost and existing HHW facilities to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facility minimizing discharges to water resources. Contingency measures further minimize potential effects from HHW facilities 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and central compost facility)

TABLE D1.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Large quantity of residential wet wastes composted at an in-vessel facility may result in additional emissions (VOCs) and effects • Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility (particularly residential wet waste compost facility) and MRF. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes, as in System 6, which has increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Composting of large quantities of residential wet wastes at central facility may result in greater atmospheric emissions than Systems 1 to 4.

TABLE D1.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Durham
SYSTEM: Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and mixed waste processing and compost facility Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and mixed waste processing and compost facility. Effects are minimized by facility siting process for each facility. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and mixed waste processing and composting facility)

TABLE D1.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW, compost and mixed waste processing and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots, central compost facility, and mixed waste processing/compost facility. The installation of design features and contingency measures minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and mixed waste processing/compost facility, and installing facility design features at existing compost and HHW facilities and new mixed waste processing/compost facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF and new mixed waste processing and compost facility. Effects are minimized by siting process for each facility 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and mixed waste processing and composting facility) Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from compost facilities is greater than effects predicted from all other systems due to large mixed waste processing and composting facility

TABLE D1.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects. Processing and composting of mixed wastes may result in additional emissions (particularly VOCs) and effects • Accidents at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost and compost facilities and MRF. Exposure to these emissions may result in effects. Processing and composting of mixed wastes may result in most harmful emissions • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Processing and composting of large quantities of mixed wastes at central facility may result in greater atmospheric emissions than all other systems

TABLE D2.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Metro Toronto
 SYSTEM: Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Potential for loss or removal of terrestrial systems and resources is minimized since permanent HHW depots are located at existing landfill sites and transfer stations, through design features at the depots and by implementing contingency measures in the event of an accident (including toxic taxis) 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots and toxic taxi. Effects are minimized due to the location of the depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depots or involving toxic taxi may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D2.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from HHW depots, toxic taxi and central compost facilities. Effects are minimized by the installation of design features to prevent discharges and through contingency measures (also for toxic taxi) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at HHW depots and compost facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D2.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D2.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Metro Toronto
 SYSTEM: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures (also for toxic taxis) minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots and toxic taxi. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D2.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots, toxic taxi and central compost facilities. The installation of design features and contingency measures (also for toxic taxi) minimizes the potential for effects Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost facilities and HHW depots to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D2.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. • Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D2.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Metro Toronto
SYSTEM: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Dissadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures (also for toxic taxi) minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots and toxic taxi. Effects are minimized due to location of HHW depots, and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset). 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to anticipated illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 	<ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to illegal dumping of wastes. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to anticipated illegal dumping of wastes is greater than for all other systems

TABLE D2.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots, toxic taxi and central compost facilities. The installation of design features and contingency measures (also for toxic taxi) minimizes the potential for effects. 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost facilities and HHW depots to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi Promotion/education of Direct Cost and 3Rs programs and illegal dumping or littering by-law enforcement minimizes disruption effects due to anticipated illegal dumping of wastes but does not eliminate the potential effects 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process. Potential for disruption effects to aquatic systems and water resources due to illegal dumping of wastes. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to aquatic systems and water resources due to anticipated illegal dumping of wastes is greater than for all other systems.

TABLE D2.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. • Accidents involving toxic taxi at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D2.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Metro Toronto
 SYSTEM: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures (also for toxic taxi) minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots and toxic taxi. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D2.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots, toxic taxi and central compost facilities. The installation of design features and contingency measures (also for toxic taxi) minimizes the potential for effects Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost facilities and HHW depots to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D2.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. • Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D2.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Metro Toronto
SYSTEM: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and new central compost facility Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures (also for toxic taxi) minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and new central compost facility. Effects are minimized by siting process for each facility. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots and toxic taxi. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxi or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and new central compost facility)

TABLE D2.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facilities minimizing discharges to water resources 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots, toxic taxi and new central compost facility. The installation of design features and contingency measures (also for toxic taxi minimizes the potential for effects. Effects are also minimized by new in-vessel compost facility which replaces existing compost facilities 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from central compost facilities is less than effects predicted from all other systems since a new in-vessel facility replaces all existing compost facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and new central compost facility, and installing facility design features at new compost facility and HHW depots to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facilities minimizing discharges to water resources. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF and new central compost facility. Effects are minimized by siting process for each facility 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and central compost facility)

TABLE D2.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Large quantity of residential wet wastes composted at in-vessel facility may result in additional emissions (VOCs) and effects • Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility (particularly residential wet waste compost facility) and MRFs. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depots 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes, as in System 6, which has increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Composting of large quantities of residential wet wastes at central facility may result in greater atmospheric emissions than Systems 1 to 4

TABLE D2.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: **Metro Toronto**
SYSTEM: **Residential Mixed Waste Processing**

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and two new mixed waste processing and compost facilities Location of existing HHW depots at landfill site or transfer stations, design features at depots, and implementing contingency measures (also for toxic taxis) minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and two new mixed waste processing and compost facilities. Effects are minimized by siting process for each facility. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depots and toxic taxi. Effects are minimized due to location of HHW depots and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents involving toxic taxis or at HHW depots may potentially disrupt terrestrial systems and resources in a small localized area near the depot or vehicle 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted for all other systems since three new facilities are to be sited (MRF and two mixed waste processing and compost facilities)

TABLE D2.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW, compost and mixed waste processing and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depots, toxic taxi, central compost facilities and mixed waste processing/compost facilities. The installation of design features and contingency measures (also for toxic taxi) minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and two new mixed waste processing/compost facilities, and installing facility design features at existing compost and HHW facilities and new mixed waste processing/compost facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facilities and toxic taxi 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF and two new mixed waste processing and compost facilities. Effects are minimized by siting process for each facility. 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from all other systems since three new facilities are to be sited (MRF and two mixed waste processing and composting facilities) Potential for loss or removal and disruption of aquatic systems and resources due to discharges from compost facilities is greater than effects predicted from all other systems due to two large mixed waste processing and composting facilities

TABLE D2.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects. Processing and composting of mixed wastes may result in additional emissions (particularly VOCs) and effects • Accidents involving toxic taxi or at HHW depots may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost and compost facilities and MRF. Exposure to these emissions may result in effects. Processing and composting of mixed wastes may result in most harmful emissions • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents involving toxic taxi or at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Processing and composting of large quantities of mixed wastes at two central facilities may result in greater atmospheric emissions than all other systems

TABLE D3.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

York
Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF. Potential for loss or removal of terrestrial systems and resources is minimized since HHW is collected by small mobile depot or special collection day. Effects are minimized by holding HHW collections at appropriate locations and contingency measures can be implemented in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process Potential for loss or removal and disruption of terrestrial systems and resources due to HHW collection day or mobile depot. Effects are minimized by holding collection events at appropriate locations and through contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> None compared to the other systems

TABLE D3.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facility and by holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW collection days and mobile depot, and central compost facility. Effects are minimized by the installation of design features to prevent discharges, holding HHW collections at appropriate locations and through contingency measures 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at compost facility to prevent discharges to surface and ground waters. Holding HHW collections at appropriate locations and contingency measures further minimize potential effects from discharges at HHW collection areas 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D3.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW collection events may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRFs. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection events 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D3.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: York
SYSTEM: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Holding HHW collection days or locating mobile depot at appropriate site and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process Potential for loss or removal and disruption of terrestrial systems and resources due to HHW collection day or mobile depot. Effects are minimized by holding collection events at appropriate locations and through contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D3.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facility, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters. 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facility. Effects are minimized by the installation of design features to prevent discharges, holding HHW collections at appropriate locations and through contingency measures Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at existing compost facility to prevent discharges to surface and ground waters. Appropriate locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D3.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D3.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: York
SYSTEM: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Holding HHW collection days or locating mobile depot at appropriate site and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW collection day or mobile depot. Effects are minimized by holding collection events at appropriate locations and through contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from System 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to anticipated illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 	<ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to illegal dumping of wastes. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to anticipated illegal dumping of wastes is greater than for all other systems

TABLE D3.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facility, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facility. Effects are minimized by the installation of design features and contingency measures, and using appropriate locations for HHW collections 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at existing compost facility to prevent discharges to surface and ground waters. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas Promotion/education of Direct Cost and 3Rs programs and illegal dumping or littering by-law enforcement minimizes disruption effects due to anticipated illegal dumping of wastes but does not eliminate the potential effects 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process Potential for disruption effects to aquatic systems and resources due to illegal dumping of wastes. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to aquatic systems and water resources due to anticipated illegal dumping of wastes is greater than all other systems

TABLE D3.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. • Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRF. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D3.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: York
SYSTEM: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Locating HHW collection days or mobile depot at appropriate sites and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW collection day or mobile depot. Effects are minimized by holding collection events at appropriate locations and through contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> None compared to the other systems

TABLE D3.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facility, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and central compost facility. The installation of design features and contingency measures, and using appropriate locations for HHW collections minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at existing compost facility to prevent discharges to surface and ground waters. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D3.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. • Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D3.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: York
SYSTEM: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Dissadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and new in-vessel central compost facility Holding HHW collection days or locating mobile depots at appropriate site and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and new central compost facility. Effects are minimized by siting process for each facility Potential for loss or removal and disruption of terrestrial systems and resources due to HHW collection day or mobile depot. Effects are minimized by holding collection events at appropriate locations and through contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (central compost facility and MRF)

TABLE D3.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost facility, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facility, minimizing discharges to water resources 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW collection days or mobile depot and new central compost facility. The installation of design features and contingency measures and using appropriate locations for HHW collections minimizes the potential for effects. Effects are also minimized by new in-vessel compost facility which replaces existing central compost facility 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from central compost facilities is less than effects predicted from all other systems since a new in-vessel facility replaces the existing compost facility
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and new central compost facility and installing facility design features at new compost facility to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facility minimizing discharges to water resources. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF and new central compost facility. Effects are minimized by siting process for each facility 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and central compost facility)

TABLE D3.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Large quantity of residential wet wastes composted at in-vessel facility may result in additional emissions (VOCs) and effects • Accidents at HHW collection days or mobile depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facility (particularly residential wet waste compost facility) and MRF. Exposure to these emissions may result in effects. • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes, as in System 6, which has increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Composting of large quantities of residential wet wastes at central facility may result in greater atmospheric emissions than Systems 1 to 4

TABLE D3.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: York
SYSTEM: Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and new mixed waste processing and compost facility Holding HHW collection days or locating mobile depot at appropriate site and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and new mixed waste processing and compost facility. Effects are minimized by siting process for each facility Potential for loss or removal and disruption of terrestrial systems and resources due to HHW collection day or mobile depot. Effects are minimized by holding collection events at appropriate locations and through contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None compared to the other systems <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and mixed waste processing/compost facility)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW collection day or mobile depot may potentially disrupt terrestrial systems and resources in a small localized area near the collection area 		

TABLE D3.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at compost and mixed waste processing and compost facilities, holding HHW collections at appropriate locations and having contingency measures in place to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW collection days or mobile depot, central compost facility and mixed waste processing/compost facility. The installation of design features and contingency measures and using appropriate locations for HHW collections minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and new mixed waste processing/compost facility, and installing facility design features at existing compost facility and new mixed waste processing/compost facility to prevent discharges to surface and ground waters. Proper locations for HHW collections and contingency measures minimize potential effects from HHW collection areas 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF and new mixed waste processing and compost facility. Effects are minimized by siting process for each facility 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and mixed waste processing and composting facility) Potential for loss or removal and disruption of aquatic systems and resources, due to discharges from compost facilities, is greater than effects predicted from all other systems due to large mixed waste processing and composting facility

TABLE D3.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects. Processing and composting of mixed wastes may result in additional emissions (particularly VOCs) and effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects. 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost facility, central compost facility and MRF. Exposure to these emissions may result in effects. Processing and composting of mixed wastes may result in most harmful emissions • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW collection sites 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Processing and composting of large quantities of mixed wastes at central facility may result in greater atmospheric emissions than all other systems

TABLE D4.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Existing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Potential for loss or removal of terrestrial systems and resources is minimized since HHW depot is located at existing landfill site, through design features at the depot and by implementing contingency measures in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depot. Effects are minimized due to the location of the depot, and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF) <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		

TABLE D4.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depot and central compost facilities. Effects are minimized by the installation of design features to prevent discharges, and through contingency measures 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and installing facility design features at HHW depot and compost facilities to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D4.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D4.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depot. Effects are minimized due to location of HHW depot and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D4.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depot and central compost facilities. The installation of design features and contingency measures minimizes the potential for effects Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost facilities and HHW facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D4.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D4.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Direct Cost

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depot. Effects are minimized due to location of HHW depot, design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset). 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for disruption effects due to anticipated illegal dumping of wastes may be minimized by promotion/education and enforcement of by-laws, but not eliminated Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 	<ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to illegal dumping of wastes. Promotion/education of Direct Cost and 3Rs programs and enforcement minimizes the level of illegal dumping 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to terrestrial systems and resources due to anticipated illegal dumping of wastes is greater than for all other systems

TABLE D4.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depot and central compost facilities. The installation of design features and contingency measures minimizes the potential for effects. 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost facilities and HHW facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility Promotion/education of Direct Cost and 3Rs programs and illegal dumping or littering by-law enforcement minimizes disruption effects due to anticipated illegal dumping of wastes but does not eliminate the potential effects 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process. Potential for disruption effects to aquatic systems and water resources due to illegal dumping of wastes. Promotion/education of programs and dumping/littering by-law enforcement also minimizes effects 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption effects to aquatic systems and water resources due to anticipated illegal dumping of wastes is greater than for all other systems

TABLE D4.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D4.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Expanded Blue Box

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures minimizes potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF. Effects are minimized by siting process. Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depot. Effects are minimized due to location of HHW depot and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D4.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depot and central compost facilities. The installation of design features and contingency measures minimizes the potential for effects Potential for disruption to aquatic systems and water resources due to new MRF. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only one new facility is to be sited (MRF)
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF, and installing facility design features at existing compost facilities and HHW facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE D4.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at compost facilities and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes or wet wastes, as in Systems 5 and 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE D4.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Wet/Dry

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Dissadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and central compost facility Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and central compost facility. Effects are minimized by siting process for each facility Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depot. Effects are minimized due to location of HHW depot and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and central compost facility)

TABLE D4.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW and compost facilities to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facilities minimizing discharges to water resources 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depot and new central compost facility. The installation of design features and contingency measures minimizes the potential for effects. Effects are also minimized by new in-vessel compost facility which replaces existing compost facilities Potential for disruption to aquatic systems and water resources due to new MRF and new central compost facility. Effects are minimized by siting process for each facility 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from central compost facilities is less than effects predicted from all other systems since a new in-vessel facility replaces all existing compost facilities
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and central compost facilities, and installing facility design features at new compost facility and existing HHW facility to prevent discharges to surface and ground waters. New in-vessel compost facility replaces existing compost facilities minimizing discharges to water resources. Contingency measures further minimize potential effects from HHW facility 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and central compost facility)

TABLE D4.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting and central composting but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Large quantity of residential wet wastes composted at in-vessel facility may result in additional emissions (VOCs) and effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions, including dust, odours, bioaerosols and gaseous emissions are expected at compost facility (particularly residential wet waste compost facility) and MRF. Exposure to these emissions may result in effects • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No processing and composting of mixed wastes, as in System 6, which has increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Composting of large quantities of residential wet wastes at central facility may result in greater atmospheric emissions than Systems 1 to 4

TABLE D4.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: Peel
SYSTEM: Residential Mixed Waste Processing

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new MRF and new mixed waste processing and compost facility Location of existing HHW depot at landfill site, design features at depot, and implementing contingency measures minimizes the potential for loss or removal, in the event of an accident 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRF and new mixed waste processing and compost facility. Effects are minimized by siting process for each facility Potential for loss or removal and disruption of terrestrial systems and resources due to HHW depot. Effects are minimized due to the location of the depot, and through design features and contingency measures in the event of accidents (e.g. spills, leaks, fires, vehicle upset) 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Accidents at HHW depot may potentially disrupt terrestrial systems and resources in a small localized area near the depot 		<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting of new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and mixed waste processing/compost facility)

TABLE D4.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing design features at HHW, compost and mixed waste processing and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from HHW depot, central compost facilities and mixed waste processing/compost facility. The installation of design features and contingency measures minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new MRF and new mixed waste processing/compost facility, and installing facility design features at existing compost and HHW facilities and new mixed waste processing/compost facility to prevent discharges to surface and ground waters. Contingency measures further minimize potential effects from HHW facility 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to new MRF and new mixed waste processing and compost facility. Effects are minimized by siting process for each facility 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since two new facilities are to be sited (MRF and mixed waste processing and composting facility) Potential for loss or removal and disruption of aquatic systems and resources due to discharges from compost facilities is greater than effects predicted from all other systems due to large mixed waste processing and composting facility

TABLE D4.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Some odours expected from residential composting, central composting and mixed waste processing/compost facility but no effects expected • Exposure to dust, bioaerosols and gaseous emissions at mixed waste processing/compost, compost or MRF facilities may result in effects. Processing and composting of mixed wastes may result in additional emissions (particularly VOCs) and effects • Accidents at HHW depot may result in emissions to the atmosphere and potential effects. Use of safety equipment and training reduces the potential for effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, odours, bioaerosols and gaseous emissions are expected at mixed waste processing/compost and central compost facilities and MRF. Exposure to these emissions may result in effects. Processing and composting of mixed wastes may result in most harmful emissions • Use of safety equipment and training reduces potential for effects as a result of emissions to atmosphere during accidents at HHW depot 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Processing and composting of large quantities of mixed wastes at central facility may result in greater atmospheric emissions than all other systems

SCHEDULE E

**IC&I System Net Effects Tables
By Component**

1. INTRODUCTION

The IC&I system net effects tables by component are presented in the following order:

Existing System	-	Tables E1.1 to E1.5
Existing/Committed System	-	Tables E2.1 to E2.5
Extended 3Rs Regulations System	-	Tables E3.1 to E3.5
Expanded 3Rs Regulations System	-	Tables E4.1 to E4.5
Expanded 3Rs Regulations with Organics	-	Tables E5.1 to E5.5
System	-	Tables E6.1 to E6.5
No Unprocessed Waste to Landfill	-	

TABLE E1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required

TABLE E1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials (e.g. C&D wastes, wood, drywall, etc.) in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs Community-based reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Refilling of IC&I containers and packaging (e.g. refillable bottles, refillable pails or drums, etc.) Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by IC&I generators Independent voluntary waste reduction programs in private companies Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E1.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials (e.g. C&D wastes, wood, drywall, etc.) in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging (e.g. refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall, etc.) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE E1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging (e.g. refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall, etc.) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE E1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging (e.g. refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.5
NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance <ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance <ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected

TABLE E1.5
NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall, etc.) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE E1.5
NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
		<ul style="list-style-type: none"> • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Refilling of IC&I containers and packaging (e.g. refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E1.5
NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community recycling centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators (3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators (3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Mandatory source separation of designated materials by major generators (3Rs Regulations) Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community Recycling Centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE E2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators (3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I wet wastes • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE E2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators (3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Existing/Committed
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by some IC&I generators Mandatory source separation of designated materials by major generators (3Rs Regulations) Collection of source separated dry recyclables by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community Recycling Centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I wet wastes Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected

TABLE E2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Processing - Dry Wastes</u></p> <ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within MRF. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions
<p><u>IC&I Processing - Wet Wastes</u></p> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost

TABLE E2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
		<ul style="list-style-type: none"> • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by major IC&I generators (3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E2.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA (to capture 90% of total IC&I waste - revision to 3Rs regulations) Voluntary source separation of dry recyclables by small IC&I generators Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community Recycling Centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> • Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial systems or resources expected due to siting of new MRFs

TABLE E3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Use of refillable containers (refillable bottles, refillable pails or drums) Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulation) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of designated materials by most IC&I generators in GTA (to capture 90% of total IC&I waste - revision to 3Rs regulations) • Voluntary source separation of dry recyclables by small IC&I generators • Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulation) Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in private companies Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E3.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA (to capture 90% of total IC&I waste - revision to 3Rs regulations) Voluntary source separation of dry recyclables by small IC&I generators Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community Recycling Centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables required • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE E3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulation) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Programs</u></p> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Promotion and Education</u></p> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of designated materials by most IC&I generators in GTA (to capture 90% of total IC&I waste - revision to 3Rs regulations) Voluntary source separation of dry recyclables by small IC&I generators Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community Recycling Centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Additional processing capacity for dry recyclables required Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs

TABLE E3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by build up of silt and organic materials 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE E3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres for reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulation) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Extended 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of designated materials by most IC&I generators in GTA (to capture 90% of total IC&I waste - revision to 3Rs regulations) • Voluntary source separation of dry recyclables by small IC&I generators • Collection of source separated dry recyclables from the IC&I sector by private haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. • Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic

TABLE E3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Additional processing capacity for dry recyclables required Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for a wide range of dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facilities resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facilities. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions

TABLE E3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
		<ul style="list-style-type: none"> Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	

TABLE E3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Use of refillable containers (refillable bottles, refillable pails or drums) Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulation) Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E3.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators • Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revisions to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required • No effects identified
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> • Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process • No loss or removal of terrestrial systems or resources expected due to siting of new MRFs
<u>IC&I Processing - Wet Wastes</u>	<ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required • No effects identified

TABLE E4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revisions to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Programs</u></p> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Promotion and Education</u></p> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
IC&I Collection - Dry Wastes <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators • Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revisions to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Wet Wastes</u>	<ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revisions to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Dry Wastes</u>	<ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators. • Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revisions to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for wider list of dry materials required • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Processing - Wet Wastes</u></p> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	<ul style="list-style-type: none"> • Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters

TABLE E4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revisions to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators • Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revisions to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Additional processing capacity for wider list of dry materials required Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs

TABLE E4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility). • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters

TABLE E4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revisions to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by some small IC&I generators • Mandatory source separation of expanded list of designated materials by most IC&I generators (to capture generators of 90% of total IC&I waste - revisions to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic

TABLE E4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to the atmosphere 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance <ul style="list-style-type: none"> Potential for release of dust to atmosphere by collection vehicles is reduced. Dust and exhaust emissions are still expected
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> Additional processing capacity for wider list of dry materials required Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors <ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions

TABLE E4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
IC&I Processing - Wet Wastes <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. No effects expected due to air emissions from compost
		<ul style="list-style-type: none"> Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	

TABLE E4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revisions to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E4.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in private companies • Mandatory waste audits by most IC&I generators (revision to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revisions to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations with Organics
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
IC&I Collection - Dry Wastes <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of expanded list of designated materials by most generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators. • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Mandatory source separation of wet wastes by designated IC&I generators (revision to 3Rs Regulations) • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Additional processing capacity for dry recyclables • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> • Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process 	<ul style="list-style-type: none"> • No loss or removal of terrestrial systems and resources expected due to siting new MRFs

TABLE E5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site or numerous sites may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, agricultural lands) through siting process Design facilities with optimal process method and capacity to reduce number of facilities and area required 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process and optimal design of compost facilities
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through Canadian, provincial and local waste exchange programs Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators Increased use of food wastes as animal feed Increased use of food waste for human consumption Increased landspreading of IC&I organics Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies Mandatory waste audits by most IC&I generators (revisions to 3Rs Regulations) Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E5.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revision to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics

CRITERIA GROUP: Natural

CRITERIA: Potential for Effects to Terrestrial Systems and Resources

INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of expanded list of designated materials by most generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Mandatory source separation of wet wastes by designated IC&I generators (revision to 3Rs Regulations) • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> • Additional processing capacity for dry recyclables • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through Canadian, provincial and local waste exchange programs Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators Increased use of food wastes as animal feed Increased use of food waste for human consumption Increased landspreading of IC&I organics Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies Mandatory waste audits by most IC&I generators (revisions to 3Rs Regulations) Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E5.2
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revision to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of expanded list of designated materials by most generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects	
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> • Mandatory source separation of wet wastes by designated IC&I generators (revision to 3Rs Regulations) • Voluntary source separation of IC&I generated organics • Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> • Additional processing capacity for dry recyclables • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> Locate compost facility in an area away from surface water bodies and drainage courses Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> No loss or removal of aquatic systems or water resources expected due to siting compost facility Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters
		<ul style="list-style-type: none"> Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	

TABLE E5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators (revisions to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revision to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of expanded list of designated materials by most generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of wet wastes by designated IC&I generators (revision to 3Rs Regulations) Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Additional processing capacity for dry recyclables Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs

TABLE E5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector • New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by buildup of silt and organic materials 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting
		<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	

TABLE E5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.4
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators (revisions to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revision to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I Expanded 3Rs Regulations With Organics
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
IC&I Collection - Dry Wastes <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of expanded list of designated materials by most generators (to capture generators of 90% of total IC&I waste - revision to 3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic

TABLE E5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> Mandatory source separation of wet wastes by designated IC&I generators (revision to 3Rs Regulations) Voluntary source separation of IC&I generated organics Separate collection of IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase due to increase in collection vehicle traffic 	<ul style="list-style-type: none"> Decrease speed of collection vehicles Regular vehicle maintenance 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> Additional processing capacity for dry recyclables Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors 	<ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions

TABLE E5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Increased emissions (e.g. VOCs) expected due to nature of IC&I organics 	<ul style="list-style-type: none"> Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters 	<ul style="list-style-type: none"> Potential for atmospheric emissions is reduced but not eliminated. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. No effects expected due to air emissions from compost
		<ul style="list-style-type: none"> Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material Limit operations during adverse weather conditions (i.e. windy weather) 	

TABLE E5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<p><u>IC&I Reuse</u></p> <ul style="list-style-type: none"> • Reuse by IC&I generators through Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Increased use of food wastes as animal feed • Increased use of food waste for human consumption • Increased landspreading of IC&I organics • Use of refillable containers such as packaging by businesses (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<p><u>IC&I Reduction</u></p> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by most IC&I generators (revision to 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E5.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by most IC&I generators (revisions to 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of most IC&I generators (revision to 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I No Unprocessed Waste to Landfill
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Loss or Removal of Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) • Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required No effects identified
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling (new policy) Mandatory processing of all mixed wastes prior to landfilling (new policy) Additional facilities for processing dry recyclables Additional facilities for processing mixed wastes 	<ul style="list-style-type: none"> MRFs require site area which may be of sufficient size resulting in the localized loss/removal of terrestrial biological systems, plant life, forest and agriculture resources 	<ul style="list-style-type: none"> Locate new MRFs in areas of compatible land use (i.e. industrial areas) through siting process No loss or removal of terrestrial systems or resources expected due to siting of new MRFs

TABLE E6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> Centralized windrow composting of source separated IC&I organics On-site composting of source separated organics generated by the IC&I sector Vermicomposting at some IC&I locations Rendering of food wastes from IC&I sector New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> Compost facility may require significant site area depending on capacity of facility, compost method and size of curing area. Large site or numerous sites may result in loss/removal of terrestrial biological systems, forest and agricultural resources 	<ul style="list-style-type: none"> Locate compost facilities in areas of compatible land use (i.e. industrial lands, landfill site, agricultural lands) through siting process Design facilities with optimal process method and capacity to reduce number of facilities and area required 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized but not eliminated by site selection process and optimal design of compost facilities
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Use of refillable containers (refillable bottles, refillable pails or drums, etc.) Use of reusable packaging (e.g. reusable plastic and wood pallets, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by major IC&I generators (defined in 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.1
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I No Unprocessed Waste to Landfill
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Terrestrial Systems and Resources
INDICATOR: Potential for Disruption Effects to Terrestrial Systems and Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) • Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers • Mandatory processing of all dry wastes prior to landfilling (new policy) • Mandatory processing of all mixed wastes prior to landfilling (new policy) • Additional facilities for processing dry recyclables • Additional facilities for processing mixed wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector • New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by major IC&I generators (defined in 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.2
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I No Unprocessed Waste to Landfill
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
INDICATOR: Potential for Loss or Removal of Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) • Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers • Mandatory processing of all dry wastes prior to landfilling (new policy) • Mandatory processing of all mixed wastes prior to landfilling (new policy) • Additional facilities for processing dry recyclables • Additional facilities for processing mixed wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector • New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters. This may result in the loss of aquatic biological systems and water resources 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> • No loss or removal of aquatic systems or water resources expected due to siting compost facility • Potential for loss or removal of aquatic systems and water resources is minimized by installing facility design features to prevent discharges to surface and ground waters
		<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify and treat contaminants, as required 	

TABLE E6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.3
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by major IC&I generators (defined in 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.4
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I No Unprocessed Waste to Landfill
 CRITERIA GROUP: Natural
 CRITERIA: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources
 INDICATOR: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> Voluntary source separation of dry recyclables by small IC&I generators Mandatory source separation of designated materials by major generators (3Rs Regulations) Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers Curbside collection of IC&I recyclables in some areas by municipal forces IC&I depots at transfer stations for use by small business generators Community Recycling Centres for use by small quantity IC&I generators Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of IC&I generated organics • Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Processing - Dry Wastes</u> <ul style="list-style-type: none"> • Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities • Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff • Processing of IC&I sector recyclables in municipal MRFs • Processing of IC&I sector recyclables by small private sector recyclers • Mandatory processing of all dry wastes prior to landfilling (new policy) • Mandatory processing of all mixed wastes prior to landfilling (new policy) • Additional facilities for processing dry recyclables • Additional facilities for processing mixed wastes 	<ul style="list-style-type: none"> • Expansion of existing or new MRFs covering large area may disrupt local surface water drainage patterns 	<ul style="list-style-type: none"> • Locate facility in compatible area (e.g. industrial area) with storm water management features in place (e.g. storm sewers, storm water retention pond) 	<ul style="list-style-type: none"> • No disruption to surface water resources expected due to siting of new MRFs or expanding existing MRFs

TABLE E6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector • New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> • Compost facility may generate leachate containing constituents in concentrations that may be harmful when discharged to ground and surface waters and disrupt aquatic biological systems • Surface water runoff from compost facility may disrupt surface water bodies by build-up of silt and organic materials 	<ul style="list-style-type: none"> • Locate compost facility in an area away from surface water bodies and drainage courses • Locate compost facility in an area of soils with the capacity to attenuate leachate from discharging to ground water • Install features at compost facility to prevent discharge of contaminants, silt or compost matter to surface water (e.g. storm water management pond) and to prevent surface water runoff from entering compost area (e.g. berms, ditches around facility) 	<ul style="list-style-type: none"> • Potential for disruption to aquatic systems and water resources due to leachate, silt and organic materials is minimized by facility design features to prevent discharges to surface and ground waters and by proper siting
		<ul style="list-style-type: none"> • Install features at compost facility to prevent discharge of leachate to ground water (e.g. liner, leachate collection) • Ongoing monitoring of any surface water collected on-site, leachate and composition of wastes being composted to identify, remove and treat contaminants as required 	

TABLE E6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators Use of food wastes as animal feed Use of food waste for human consumption Landspreading of IC&I organics Use of refillable containers (refillable bottles, refillable pails or drums, etc.) Use of reusable packaging (e.g. reusable plastic and wood pallets, etc.) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> Voluntary waste reduction actions by small IC&I generators Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs Regulations) Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

TABLE E6.4
GENERIC SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> • Voluntary waste audits performed by small IC&I generators • Independent voluntary waste reduction programs in small private companies • Mandatory waste audits by major IC&I generators (defined in 3Rs Regulations) • Mandatory packaging audits by major packaging generators (3Rs Regulations) • Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> • Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality • Promotion/education of IC&I waste reduction by non-profit organizations • Promotion/education of IC&I waste reduction by associations • Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT

SYSTEM: IC&I No Unprocessed Waste to Landfill
CRITERIA GROUP: Natural
CRITERIA: Potential for Effects to Atmospheric Environment
INDICATOR: Potential for Atmospheric Emissions

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Dry Wastes</u> <ul style="list-style-type: none"> • Voluntary source separation of dry recyclables by small IC&I generators • Mandatory source separation of designated materials by major generators (3Rs Regulations) • Collection of source separated dry recyclables from the IC&I sector by private sector haulers and recyclers • Curbside collection of IC&I recyclables in some areas by municipal forces • IC&I depots at transfer stations for use by small business generators • Community Recycling Centres for use by small quantity IC&I generators • Landfill bans on specified materials (e.g. wood, tires, drywall, scrap metal, white goods, fine paper, etc.) • Mandatory processing of all dry wastes prior to landfilling (new policy required by Ontario, or condition on C of A for landfill) 	<ul style="list-style-type: none"> • Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase in collection vehicle traffic 	<ul style="list-style-type: none"> • Decrease speed of collection vehicles • Regular vehicle maintenance 	<ul style="list-style-type: none"> • Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic

TABLE E6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Collection - Wet Wastes</u>	<ul style="list-style-type: none"> Voluntary source separation of IC&I generated organics Separate collection of some IC&I wet wastes 	<ul style="list-style-type: none"> Collection vehicles travelling along roads may result in release of dust and exhaust to atmosphere. Emissions expected to increase in collection vehicle traffic 	<ul style="list-style-type: none"> Potential for release of dust to the atmosphere by collection vehicles is reduced. Increased dust and exhaust emissions are still expected due to increase in collection vehicle traffic
<u>IC&I Processing - Dry Wastes</u>	<ul style="list-style-type: none"> Processing of specific dry materials (e.g. C&D wastes, wood, drywall) in specially designed facilities Processing centres for dry recyclables collected from the IC&I sector, owned by the private sector and operated by private sector staff Processing of IC&I sector recyclables in municipal MRFs Processing of IC&I sector recyclables by small private sector recyclers Mandatory processing of all dry wastes prior to landfilling (new policy) Mandatory processing of all mixed wastes prior to landfilling (new policy) Additional facilities for processing dry recyclables Additional facilities for processing mixed wastes 	<ul style="list-style-type: none"> Processing of recyclables may generate dust and bioaerosol emissions within the facility resulting in effects 	<ul style="list-style-type: none"> Provide ventilation system to capture building air for removal of dust and bioaerosols and replace with clean air, either at work stations or for entire facility Provide equipment to individual staff to restrict or prevent exposure to dust and bioaerosols (e.g. respirator) Daily cleaning of facility equipment and floors <ul style="list-style-type: none"> Emissions to atmosphere will be generated in the form of dust and bioaerosols within facility. Provision of ventilation system and personal breathing equipment will reduce but not eliminate exposure to emissions

TABLE E6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Processing - Wet Wastes</u> <ul style="list-style-type: none"> • Centralized windrow composting of source separated IC&I organics • On-site composting of source separated organics generated by the IC&I sector • Vermicomposting at some IC&I locations • Rendering of food wastes from IC&I sector • New composting facility (in-vessel) for IC&I organics 	<ul style="list-style-type: none"> • Air emissions in the broad categories of dust, bioaerosols and gaseous emissions (volatile organic compounds) are released from compost facilities. However, concentrations of these contaminants are generally very low or non-detectable with no effect on the atmosphere. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics 	<ul style="list-style-type: none"> • Prevent and minimize volatile organic compound (VOCs) emissions by removing HHW from waste stream • Proper design and operation of compost facility such as maintaining aerobic conditions and limited storage of putrescible feedstocks before composting • Install emission controls to capture and treat process and building (if enclosed) air. Types of emission control include chemical scrubbers and biofilters • Minimize contact with and general exposure to open air during shredding, mixing, sorting, turning and screening of material • Limit operations during adverse weather conditions (i.e. windy weather) 	<ul style="list-style-type: none"> • Potential for atmospheric emissions is reduced but not eliminated. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. No effects expected due to air emissions from compost

TABLE E6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Reuse</u> <ul style="list-style-type: none"> • Reuse by IC&I generators through the Canadian, provincial and local waste exchange programs • Community-based reuse programs and Community Recycling Centres with reuse programs for small IC&I generators • Use of food wastes as animal feed • Use of food waste for human consumption • Landspreading of IC&I organics • Use of refillable containers (refillable bottles, refillable pails or drums, etc.) • Use of reusable packaging (e.g. reusable plastic and wood pallets, etc.) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified
<u>IC&I Reduction</u> <ul style="list-style-type: none"> • Voluntary waste reduction actions by small IC&I generators • Voluntary reduction of packaging waste by the year 2000 (NAPP) - this includes reuse • Mandatory development of waste reduction action plans by major IC&I generators (defined in 3Rs Regulations) • Mandatory development of packaging reduction action plans by major packaging generators (defined in 3Rs Regulations) 	<ul style="list-style-type: none"> • No effects identified 	<ul style="list-style-type: none"> • None required 	<ul style="list-style-type: none"> • No effects identified

TABLE E6.5
SYSTEM NET EFFECTS TABLE BY COMPONENT
(continued)

Component Category/ Components	Component Environmental Effects	Mitigation/ Enhancement	Component Net Effects
<u>IC&I Programs</u> <ul style="list-style-type: none"> Voluntary waste audits performed by small IC&I generators Independent voluntary waste reduction programs in small private companies Mandatory waste audits by major IC&I generators (defined in 3Rs Regulations) Mandatory packaging audits by major packaging generators (3Rs Regulations) Voluntary packaging reporting by packaging users (NAPP) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified
<u>IC&I Promotion and Education</u> <ul style="list-style-type: none"> Promotion/education programs focused on reducing waste disposed by the IC&I sector, carried out by the regional municipality Promotion/education of IC&I waste reduction by non-profit organizations Promotion/education of IC&I waste reduction by associations Mandatory posting of waste reduction plans for review by employees of major IC&I generators (3Rs Regulations) 	<ul style="list-style-type: none"> No effects identified 	<ul style="list-style-type: none"> None required 	<ul style="list-style-type: none"> No effects identified

SCHEDULE F

IC&I System Net Effects Tables

1. INTRODUCTION

The IC&I 3Rs system net effects tables are presented in the following order:

Existing System	-	Table F.1
Existing/Committed System	-	Table F.2
Extended 3Rs Regulations System	-	Table F.3
Expanded 3Rs Regulations System	-	Table F.4
Expanded 3Rs Regulations with Organics System	-	Table F.5
No Unprocessed Waste to Landfill	-	Table F.6

TABLE F.1
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: **GTA**
SYSTEM: **IC&I Existing**

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal since facilities already exist 	<ul style="list-style-type: none"> Potential for effects to terrestrial systems and resources is minimal since facilities already exist 	<u>Advantages</u> <ul style="list-style-type: none"> Potential loss or removal of terrestrial systems and resources due to siting facilities is less than effects predicted from Systems 3 to 6 since all facilities already exist <u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal since facilities already exist 		
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from central compost facilities. The installation of design features to prevent discharges minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 3 to 6 since all facilities already exist <u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at compost facilities to prevent discharges to surface and ground waters 		

TABLE F.1
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No increase in waste collection requirements or increased processing of IC&I organics, as in Systems 3 to 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE F.2
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY:
SYSTEM:

GTA
IC&I Existing/Committed

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal since facilities already exist 	<ul style="list-style-type: none"> Potential effects to terrestrial systems and resources is minimal since facilities already exist 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting facilities is less than effects predicted from Systems 3 to 6 since all facilities already exist
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal since facilities already exist 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from central compost facilities. The installation of design features to prevent discharges minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 3 and 6 since all facilities already exist
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by installing facility design features at compost facilities to prevent discharges to surface and ground waters 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE F.2
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> • Dust and exhaust emissions to atmosphere expected due to collection vehicles travelling along roads and from unloading depots or bins • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> • Potential for effects to the atmospheric environment are expected due to dust and exhaust emissions from collection vehicles • Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<p><u>Advantages</u></p> <ul style="list-style-type: none"> • No increase in waste collection requirements or increased processing of IC&I organics, as in Systems 3 to 6, which have increased potential for atmospheric emissions <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • None compared to the other systems

TABLE F.3
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: **GTA**
SYSTEM: **IC&I Extended 3Rs Regulations**

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new or expanded MRFs 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new or expanded MRFs. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only expansion of existing MRFs or new MRFs are to be sited <u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal 		
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from central compost facilities. The installation of design features minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only expansion of existing MRFs or new MRFs are to be sited

TABLE F.3
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and installing design features at existing compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is due to siting new MRFs or expanding existing MRFs. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<u>Advantages</u> <ul style="list-style-type: none"> No increase in processing of IC&I organics, as in Systems 5 and 6, which have increased potential for atmospheric emissions <u>Disadvantages</u> <ul style="list-style-type: none"> Increased dust and exhaust emissions from increased collection vehicle requirements results in greater atmospheric emissions than Systems 1 and 2

TABLE F.4
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: **GTA**
SYSTEM: **IC&I Expanded 3Rs Regulations**

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new or expanded MRFs 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new MRFs. Effects are minimized by siting process 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only expansion of existing MRFs or new MRFs are to be sited
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal 		<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and resources is minimized by installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from central compost facilities. The installation of design features minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is less than effects predicted from Systems 5 and 6 since only expansion of existing MRFs or new MRFs are to be sited

TABLE F.4
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and installing design features at existing compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is due to siting new MRFs or expanding existing MRFs. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> None compared to the other systems
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Exposure to these emissions may result in effects 	<u>Advantages</u> <ul style="list-style-type: none"> No increase in processing of IC&I organics, as in Systems 5 and 6, which have increased potential for atmospheric emissions <u>Disadvantages</u> <ul style="list-style-type: none"> Increased dust and exhaust emissions from increased collection vehicle requirements results in greater atmospheric emissions than from Systems 1 and 2

TABLE F.5
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: **GTA**
SYSTEM: **IC&I Expanded 3Rs Regulations With Organics**

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new or expanded MRFs and compost facilities 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new or expanded MRFs and compost facilities. Effects are minimized by siting process for each facility 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems <u>Disadvantages</u>
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal 		<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since expanded or new MRFs and new compost facilities are to be sited
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by proper siting of new compost facilities and installing design features at compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from existing and new central compost facilities. The installation of design features minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE F.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs and compost facilities, and installing design features at new and existing compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is due to siting new MRFs and compost facilities and expanding existing MRFs. Effects are minimized by siting process 	<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from Systems 1 to 4 since expanded or new MRFs and new compost facilities are to be sited Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from compost facilities is greater than effects predicted from Systems 1 to 4 since new compost facilities are to be sited
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic for both dry recyclables and organics travelling along roads and from unloading depots or bins 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to other systems

TABLE F.5
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
	<ul style="list-style-type: none"> • Exposure to dust, bioaerosols and gaseous emissions at compost or MRF facilities may result in effects. Increased emissions expected due to composition of IC&I organics 	<ul style="list-style-type: none"> • Emissions including dust, bioaerosols and gaseous emissions are expected at compost facilities and MRFs. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics. Exposure to these emissions may result in effects 	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> • Increased dust and exhaust emissions from increased collection vehicle requirements results in greater atmospheric emissions than from Systems 1 to 4 • Increased gaseous emissions (e.g. VOCs) due to increased composting and composition of IC&I organics may result in greater atmospheric emissions from Systems 1 to 4

TABLE F.6
SYSTEM NET EFFECTS TABLE

REGIONAL MUNICIPALITY: **GTA**
SYSTEM: **IC&I No Unprocessed Waste to Landfill**

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Terrestrial Systems and Resources			
Indicator: Potential for Loss or Removal of Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is minimized by following appropriate siting process for new or expanded MRFs, mixed waste processing facilities and compost facilities 	<ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources is a result of siting new or expanded MRFs, mixed waste processing facilities and compost facilities. Effects are minimized by siting process for each facility 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems
Indicator: Potential for Disruption Effects to Terrestrial Systems and Resources	<ul style="list-style-type: none"> Potential for effects is minimal 		<u>Disadvantages</u> <ul style="list-style-type: none"> Potential for loss or removal of terrestrial systems and resources due to siting new facilities is greater than effects predicted from all other systems since expanded or new MRFs, mixed waste processing and compost facilities are to be sited
Criterion: Potential for Effects to Aquatic Systems Including Surface and Ground Water Resources			
Indicator: Potential for Loss or Removal of Aquatic Systems Including Surface Water and Ground Water Resources	<ul style="list-style-type: none"> Potential for loss or removal of aquatic systems and water resources is minimized by proper siting of new mixed waste processing and compost facilities and installing design features at mixed waste processing facilities and compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for loss or removal and disruption of aquatic systems and water resources is due to discharges from existing and new central compost facilities and new mixed waste processing facilities. The installation of design features minimizes the potential for effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to the other systems

TABLE F.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<p>Indicator: Potential for Disruption Effects to Aquatic Systems Including Surface and Ground Water Resources</p>	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is minimized by proper siting of new or expanded MRFs, mixed waste processing facilities and compost facilities, and installing design features at new mixed waste processing facilities and at new and existing compost facilities to prevent discharges to surface and ground waters 	<ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources is due to siting new MRFs, mixed waste processing facilities and compost facilities and expanding existing MRFs. Effects are minimized by siting process 	<p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Potential for disruption to aquatic systems and water resources due to siting new facilities is greater than effects predicted from all other systems since expanded or new MRFs, mixed waste processing facilities and new compost facilities are to be sited Potential for loss or removal and disruption of aquatic systems and water resources due to discharges from facilities is greater than effects predicted from all other systems since new mixed waste processing and compost facilities are to be sited

TABLE F.6
SYSTEM NET EFFECTS TABLE
(continued)

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
Criterion: Potential for Effects to Atmospheric Environment			
Indicator: Potential for Atmospheric Emissions	<ul style="list-style-type: none"> Increased dust and exhaust emissions to atmosphere expected due to increase in collection vehicle traffic for dry recyclables, organics and mixed wastes travelling along roads and from unloading depots or bins Exposure to dust, bioaerosols and gaseous emissions at compost, mixed waste processing or MRF facilities may result in effects. Increased emissions expected due to composition of IC&I organics and mixed wastes 	<ul style="list-style-type: none"> Potential for effects to the atmospheric environment are expected due to increased dust and exhaust emissions from increased collection vehicle requirements Emissions including dust, bioaerosols and gaseous emissions are expected at compost and mixed waste processing facilities and MRFs. Increased emissions (e.g. VOCs) expected due to composition of IC&I organics and mixed wastes. Exposure to these emissions may result in effects 	<u>Advantages</u> <ul style="list-style-type: none"> None compared to other systems <u>Disadvantages</u> <ul style="list-style-type: none"> Increased dust and exhaust emissions from increased collection vehicle requirements results in greater atmospheric emissions than from all other systems Increased gaseous emissions (e.g. VOCs) due to increased composting and composition of IC&I organics and processing of mixed wastes may result in greater atmospheric emissions than all other systems



(16129)

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Ontario Ministry of Enviro
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3Rs analysis

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